Measuring Master's Student Engagement

Author: Katherine Grace O'Dair

BOSTON COLLEGE

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KATHERINE G. O'DAIR

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Katherine G. O'Dair

Dr. Karen Arnold, Dissertation Chair

ABSTRACT

Master's education is the largest segment of graduate education in the United States yet there is a paucity of research about how master's students experience their programs. Empirical research on student engagement - defined as the time and effort students devote to activities that are linked to educational outcomes and what institutions do to promote student participation in these activities – is discussed in the literature as a mostly undergraduate phenomenon (Kuh, 2001; 2003; Kuh et al., 2007a). This quantitative study extended engagement research to master's students using an instrument called the Master's Survey of Student Engagement (MSSE), which was adapted from the Law School Survey of Student Engagement.

The MSSE was administered to 1,539 students enrolled in a master's program in arts and sciences, business, or education at a mid-sized research University in the Northeast. An exploratory factor analysis was conducted to examine the internal structure of the MSSE. Following the factor analysis, five multiple regression analyses were conducted; each multiple regression analysis examined the relationship between a particular engagement dimension (as the dependent variable) and the student characteristics of academic discipline, gender, age, enrollment status, children status, marital status, and international status (as the independent variables). While the findings suggest at least five dimensions of engagement for master's students, three of these dimensions are more strongly associated with student characteristics, including academic discipline. The findings also showed that master's students in business and education are more likely to experience a supportive campus environment than are students in

arts and sciences. The findings also suggested that arts and sciences students have a more rigorous intellectual experience and engage more with faculty than do students in education or business.

DEDICATION

This dissertation is dedicated to my parents, Marlene D. O'Dair, M.S., RN and the late Robert B. O'Dair, M.D. who instilled in me a lifelong love for learning

ACKNOWLEDGMENTS

When I entered my doctoral program, my goals were simple - take the classes, do the work, keep pace with my classmates, and finish my dissertation. But a funny thing happened on the way to my Ph.D.: I fell in love with learning again, and I found a new sense of what it means to be grateful. This transformation happened quickly after starting classes, and with each subsequent paper or reading I found myself immersed in the scholarly work of a field I love. And I met people along the way who challenged me, supported me, loved me, and pushed me to be my best. While doctoral study can be a lonely endeavor at times, I found that my world didn't get smaller and lonelier, it got larger and fuller. Ultimately, in times of stress or difficultly I reminded myself what a privilege it was to be a doctoral student. *You chose this* – I said to myself.

I am indebted to my dissertation committee and to my advisor, Dr. Karen Arnold. My dissertation committee would be the winner of the "dissertation committee of the year" if such an award were given. Dr. Arnold was a consistent source of support and guidance throughout my entire journey. Everyone should be so lucky to have someone who genuinely cares about her students and advocates for them at every turn. My readers, Dr. Carole Hughes and Dr. Sarah Enterline, were equally supportive during the dissertation stage, lending not only their respective expertise but also a lot of encouragement, positive energy, and care at each step. Their quick turnaround time for my work was much appreciated.

I was extremely fortunate to have two very important people on my journey with me: Kara Godwin and Samantha Carney. We started the program together and have been there for each other every step of the way. We have laughed and cried together, all in the spirit of

friendship and a shared experience. Their relentless support and encouragement was priceless. My extended/adopted cohort – Mark Kenyon, Lori Tenser, Amir Reza, and Meghan Brusch – also played a key role in my sanity and the laughs far outweighed the tears. Again, my experience with these wonderful people is evidence that community does exist in a doctoral program, and how vital it is to success.

I chose to do a quantitative study, which some might find surprising. But I quickly learned that there are people called "tutors". It just so happened that my tutor, Todd Reeves, ended up redefining the role of a tutor. Todd not only taught me the complicated stats that I needed, he made sure I *learned* it. As you might imagine this was no small task, but one that Todd took on with grace, patience, humor, and a lot of coffee. I learned to love statistics after working with Todd, who became both a teacher and friend on my journey. I am a better scholar for working with Todd.

Without the support of all of my colleagues and friends in the division of student affairs, I would not have finished. So many people believed in me and pushed me to keep going when the times got tough, and for that I am forever grateful. I am especially indebted to Joy Galarneau, who helped me become a better scholarly writer, particularly in the early stages of the program, and to my confidant Henry Humphreys whose friendship and counsel were invaluable, and who showed me that working full time and getting your Ph.D. can be done and it doesn't have to be painful.

I would be remiss if I did not thank all of my wonderful friends who kept me sane and healthy during the past four years. To my MIT swimming lane mates, you are the ones who got me up each morning at 5:30, rain, snow, or shine. To all my friends, who understood that some things needed to be put on hold for a few years, I am looking forward to having our time back.

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Beyond meeting the requirements of the doctoral degree, this process has brought new life to my work, my interests, and to my sense of contribution to our field. I am, and will remain, thankful for the opportunities presented to me.

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Introduction

Individuals who earn a master's degree participate more in civic activities, have better educated children, provide leadership in non-profit sectors of our economy, and report that their overall health and well-being is better than individuals who do not have at least a master's degree (Council of Graduate Schools, 2009a). Master's education is the largest segment of graduate education in the United States yet little is known in terms of the master's student experience: how they engage with the university, the predominant issues they face, and what organizational structures support them while at the university. Empirical research on student engagement - defined as the time and effort students devote to activities that are linked to educational outcomes and what institutions do to promote student participation in these activities - is discussed in the literature as a primarily undergraduate phenomenon (Kuh, 2001; 2003; Kuh et al., 2007a). Administrators working with undergraduate students have increasingly focused on the concept of student engagement as it relates to students' persistence, learning, and overall campus experience. Evidence shows that the more students are engaged in educationally effective practices the more likely they are to learn (Kuh, 2001; 2003; 2009a; Wolf-Wendel, Ward, & Kinzie, 2009). This study extended engagement research to master's students and gathered evidence to inform practices that help students engage with each other, faculty, and their academic discipline.

Master's education is part of the overall field of graduate education, which also encompasses the doctoral degree, the professional degree, and special certification programs. The master's degree is an educational degree requiring one or two years of full-time academic study beyond a bachelor's degree (Rapp & Golde, 2008; United States Bureau of Labor, 2010).

Master's programs in American higher education today may incorporate aspects of both the baccalaureate degree and doctoral degree, including coursework, an experiential or research component, or a final thesis or capstone project. Within the realm of higher education, the term graduate student is properly used as a general term encompassing master's students, professional students, doctoral students, and students in certification programs.

Statement of the Problem

There is a dearth of research about how master's students experience their programs. This stands in sharp contrast to professional standards that call for a full assessment of the student experience in graduate programs to ensure that institutions are meeting their stated goals (CAS, 2009). If we juxtapose these two realities - a lack of research to help practitioners improve programs and the expectation that institutions examine the student experience - a clear need emerges for a study of engagement among master's students. What research has been done relating to master's students is mostly anchored in the perspectives of faculty and administrators, not the master's students themselves (Conrad, Duren & Haworth, 1998). Further, institutions have done a good job of gauging student satisfaction, but satisfaction is insufficient for assessing whether programs are meeting their stated goals because it does not inform how students learn (Bresciani, 2010; Reeves & Pedulla, 2011). Also, institutions need to know what parts of the educational process either contribute to or inhibit student learning and development. Without research to show how master's students engage with the institution, faculty and administrators are left to use their tacit knowledge of what their students need to develop programs and services.

Within the last decade more institutions have generalized services traditionally utilized by undergraduate students to the graduate student population (Brandes, 2006; Golde & Dore,

2001; Lovitts, 2001). However, it is invalid to make the assumption that a program or service that shows evidence of enhancing undergraduate student learning will also enhance graduate student learning because these are vastly different populations. Instead, institutions could first establish empirically what activities relate to student learning then make informed decisions about what to offer to improve student learning (Banta, 2002). This is important because policy makers and accreditation bodies are increasingly imposing quality assurance mandates on institutions of higher education, asking institutions to demonstrate that they add value to the quality of the students' educational experiences (Krause, 2005).

Data from a 2010 project by the Council of Graduate Schools (CGS) show that master's program enrollment continues to rise (Bell, 2011). One explanation for this enrollment increase is the growth of professional science master's programs (PSM) that combine science studies and practical training. PSM programs grew by nearly 15% between 2010 and 2011(Allum & Bell, 2011). In this same study first-time enrollment among international students grew by 57.6% between 2010 and 2011.

Master's degrees awarded increased slightly, 2.9% between 2008-09 and 2009-10. For those students enrolling for the first time in graduate school, 84.5% enrolled in a master's program. Overall enrollment trends through 2010 indicate that graduate and professional education in the United States grew considerably in the last two decades, from about two million students in fall 1995 to more than 2.6 million students in fall 2007 (Snyder, Dillow, & Hoffman, 2009). This long-term growth in graduate education further highlights the need to better understand the master's student experience. What problems, if any, are students and institutions currently facing?

Attempts to collect and report institutionally useful data on master's students have been difficult due to a number of factors, including a large proportion of part-time master's students, vast differences in programs of study, and wide variations in students' individual characteristics (Council of Graduate Schools, 2005). A 2010 Council on Graduate Schools report on the future of graduate education stated that more attention must be paid to the needs and issues of master's degree programs and the master's student experience (Wendler et al., 2010). Progress is being made in gathering data about master's education as evidenced by the Allum and Bell (2011) and Bell (2011) studies that track enrollment trends and overall demographics of master's students by degree type. Still, these studies do not investigate the master's student experience and therefore do not provide faculty or administrators with data that could help better understand and improve the student's experience once they have arrived on campus.

Purpose of the Study

The purpose of this study was to investigate engagement among master's students and the extent to which master's students are engaged in educationally effective practices thought to promote student learning. For this study, learning is defined as a "comprehensive, holistic, transformative activity that integrates *academic learning* and *student development*, processes that have often been considered separate, and even independent of each other" (Keeling, p.4, 2004). Student engagement represents the time and effort students devote to activities that are empirically linked to desired higher education outcomes and what institutions do to promote student participation in these activities (Kuh, 2009).

The study used an adapted version of a national student engagement instrument, the Law School Survey of Student Engagement (LSSSE), to measure engagement in master's students. Co-sponsored by the Association of American Law Schools and the Carnegie Foundation for the

Advancement of Teaching, the LSSSE provides data to law schools to help them understand how well their practices contribute to student learning and benchmark their performance with national data (LSSSE, 2011). The LSSSE is an adaptation of the National Survey of Student Engagement (NSSE), a widely used instrument that is intended to measure undergraduate student engagement. The NSSE attempts to measure five dimensions or benchmarks of engagement.

In this study, the adapted instrument is referred to as the Masters Survey of Student Engagement (MSSE) instrument. The MSSE adapted the LSSSE questions for a master's student context. Since the NSSE, LSSSE and MSSE are nearly identical, the study utilized the five NSSE engagement benchmarks as a framework for the MSSE's content. These benchmark dimensions are: (a) Level of Academic Challenge (LAC), (b) Active and Collaborative Learning (ACL), (c) Student-Faculty Interaction (SFI), (d) Enriching Educational Experiences (EEE), and (e) Supportive Campus Environment (SCE).

This study first investigated if the internal structure of the MSSE fit the five NSSE benchmarks of student engagement. The study then explored if there were significant differences in the engagement levels of master's students enrolled in three broad disciplines: arts and sciences, education, and business. The relationship between student engagement levels and the personal and academic characteristics of master's students was also explored. The engagement patterns for master's students in three popular disciplinary fields – education, business, and arts and sciences – were examined. These three fields were selected because a 2010 Council of Graduate Schools study of the number of master's degrees awarded determined that education (26.5%), business (24.4%), and arts and sciences (12.9%) had the highest percentage of master's degree recipients (Bell, 2011). For the purposes of this study, arts and sciences included arts, humanities, and social and behavioral sciences.

Engagement and involvement theories are grounded in research on full-time undergraduate students, and a central element of these theories is the concept of time-on-task, or how much time is exerted by undergraduate students in activities related to their learning. It stands to reason that many of the characteristics that compete for master's students' time and energy such as enrollment status, age, and household status will also relate to engagement levels.

Another comparison in this study, between part-time students and full-time students, is especially important given its potential impact on program and service development. These two populations often have drastically different needs; data on the engagement patterns of full-time and part-time students will help inform practitioners as they seek ways to meet these needs. Astin (1984) posits that part-time undergraduate students "presumably manifest less involvement simply because they are part-time students" (p. 524).

International students are another sub-population that was of interest in this study. The field of business, in particular, features a high percentage of international students, and exploring how international student engagement patterns differ from those of domestic students may help target support to these students. This study also explored if engagement patterns for academic disciplines varies by gender. Nationally, the enrollment of men and women in master's programs is nearly equal, but this is due to the high percentage of women enrolled in education programs and other programs such as nursing (Council for Graduate Schools, 2009b). Do males and females in the same discipline engage differently from one another?

As the demographic profile in chapter two will show, there is a wide age range of master's students. Understanding how and to what extent age corresponds with engagement levels will help target services to meet student needs more effectively. Married or partnered students in particular might have pressures outside of their academic work that prevent them

from engaging as fully as students who are single in tasks that require significant time outside of class. Likewise, master's students who have children might put more energy into their work as a parent than their academic work.

Another critical finding from research on first year and senior year undergraduate students using the National Survey of Student Engagement (NSSE) is that engagement in educationally purposeful activities has a positive relationship to grade point average (NSSE, 2012). This study explored if this relationship held true for master's students as well.

Research Questions

The two primary research questions in this study were:

1. What is the internal structure of the MSSE instrument as it relates to the five NSSE benchmarks of student engagement, and how do its scores relate to relevant educational outcomes?
2. How are the five dimensions of engagement related to the characteristics of academic discipline, enrollment status, gender, age, marital status, international student status, and children status?

Chapter three will discuss a number of secondary questions.

Conceptual Framework

This study was anchored in the literature on college student engagement, with particular emphasis on Alexander Astin's (1984) theory of student involvement, Vincent Tinto's (1975, 1993, 1998) theory on the effects of social and academic integration on student departure, and Ernest Pascarella's (1985) and later Pascarella and Patrick Terenzini's (2005) general causal model for assessing the effects of the environment on student learning. These three theories are explored more in depth in chapter two. In a study of student engagement in master's students it is

also important to draw on research from the literature on adult student learning theory, particularly given that engagement research focuses almost exclusively on undergraduate students.

Student Engagement and Student Involvement

Student engagement has been explored extensively in the literature with the definition developing over time through the efforts of a number of key theorists and educational researchers. Kuh (2003) states:

> The engagement principle is deceptively simple, even self-evident: the more students study a subject, the more they learn about it. Likewise, the more students practice and get feedback on their writing, analyzing, or problem solving, the more adept they become (p. 25).

The broad concept of student engagement represents the time and effort students devote to educationally purposeful activities that are empirically linked to desired educational outcomes (Kuh, 2001; 2003; 2009a). Evidence shows that various positive outcomes are associated with higher levels of engagement at the postsecondary level (Astin, 1993b; Pascarella & Terenzini, 2005; Tinto, 1987). Student engagement is theorized to include the interaction between students and their learning environment, where students are responsible for their own level of involvement and institutions are responsible for promoting an environment that encourages student involvement (Chalmers, 2007). Chickering and Gamson (1987) proposed a set of engagement indicators, which include student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse ways of learning. Certainly undergraduate engagement research can help frame a study of engagement

in master's students. Below is a brief description of three theories that have provided a foundation for the concept of student engagement.

Alexander W. Astin's Theory of Student Involvement. Astin's (1977) theory of student involvement is seminal in the concept of student engagement. The premise of Astin's (1977; 1993) theory of student involvement is that the more time and energy invested by students in the educational experience, the more likely it is that learning will occur. His input-environment-output (I-E-O) model considers the characteristics of a matriculating postsecondary student (inputs), the various programs, policies, faculty and peer interactions, and other educational experiences to which the student is exposed (environment), and the characteristics of the student after completion (outputs) (Astin, 1993). The primary focus of the I-E-O model is on the relationship between environmental characteristics and the outputs of the system, and its purpose is to determine whether students learn more or less effectively under different environmental conditions (Pascarella & Terenzini, 2005). The key factors in a student's environment include institutional characteristics, peer group involvement, faculty involvement, academic involvement, employment, and campus activities (Astin, 1993). Instruments that are intended to measure engagement collect data on these key areas of engagement.

Ernest T. Pascarella's General Causal Model of Student Learning. Pascarella (1985) offers a broader view of student engagement in his *General Causal Model for Assessing the Effects of Differential Environments on Student Learning and Cognitive Development.* The model posits that academic growth is a function of the direct and indirect effects of five main sets of variables including: (a) student background characteristics; (b) organizational characteristics; (c) institutional environment; (d) interactions with faculty and peers; and (e) the

quality of effort exerted by the student (Pascarella & Terenzini, 1991; 2005). The relationship between these variables will be explored further in the review of literature.

Tinto's Theory of Student Persistence. Persistence refers to a student's ability to matriculate to an academic program, stay enrolled in the institution, and graduate from the institution with a degree (Berger & Milem, 2000; Titus, 2004). One of the most influential theories of student persistence comes from Tinto (1975; 1982; 1993; Pascarella, Duby, & Iverson, 1983). The central premise of Tinto's theory of persistence is the concept of integration. Tinto (1975) asserted that students' decisions to leave an institution are due to the relationship between their intentions and their interactions with others. Intention represents a determination to act in a certain way in the future (Okun, Benin & Brandt-Williams, 1996). Interaction represents both social integration and academic integration. Social integration is the amount of interaction a student has with his or her peers and academic integration is the amount of interaction a student has with other students or faculty in their academic program. Students who are engaged in both of these realms are more likely to persist. Those who experience low integration, be it social or academic, are less likely to persist. While Tinto's theory can be applied to both graduate and undergraduate student experiences, academic integration may be more important than social integration for graduate students, because there is a heavier focus on academics in graduate education (Pascarella & Terrenzini, 2005; Tinto, 1993). As Tinto (1998) stated:

> One thing we know about persistence is that involvement matters. The more academically and socially involved individuals are - that is, the more they interact with other students and faculty - the more likely they are to persist (p. 167).

Adult Learning Theory

Some literature supports the idea that adult students learn differently than traditional age undergraduate students (Kasworn, 2003; Zemke, 2002). However, while the demographic data presented later in chapter two provides evidence that master's students are commonly adult students, the author's investigation of the adult learning literature suggests that graduate students are infrequently the focus of research on adult learning. Knowles (1990) offers a four part definition of the adult student. The first part concerns biological and physical attributes, the second legal age, the third societal acknowledgments such as full-time employment or childbearing, and the fourth self-directedness. Given what we know about adult learning and the demographics of master's students, research on adult learning can be helpful in framing issues of engagement within master's education. Of particular importance to this study is the concept of andragogy, which is the art and science of teaching and promoting learning in adults (Knowles, 1980; Knowles, Holton, & Swanson, 2005). The basic tenets of andragogy include the importance of a cooperative learning climate, a proper diagnosis of the needs and interests of the student, a clear set of learning objectives, and the provision of knowledge that can be applied immediately (Knowles, 1970; Reeves & Pedulla, 2012).

Overview of Research Design

This quantitative study sought to understand the generalizability of theories of student engagement to a less well-understood segment of higher education and utilized an adapted national survey to understand engagement in master's students. The survey instrument used in this study is referred to as the Master's Survey of Student Engagement (MSSE). Information on the construction and psychometric properties of the National Survey of Student Engagement

(NSSE) and the Law School Survey of Student Engagement (LSSSE), from which the MSSE was adapted, are provided in more detail in chapter three.

Descriptive statistics were first calculated for all variables, including all individual MSSE items. An exploratory factor analysis was conducted to examine the internal structure of the MSSE (research questions number 1) as well as the nature of engagement in a master's student context. The scores from the MSSE were also correlated with external variables to test convergent construct validity.

Five multiple regression analyses were conducted for research question 2; each multiple regression analysis examined the relationship between a particular engagement dimension (dependent variable) and six individual characteristics (independent variables): Academic discipline, gender, enrollment status, international status, marital status, and children status. Each multiple regression analysis also included an interaction between gender and academic discipline. Correlation analysis was also used to examine the relationship between each of the MSSE engagement dimensions and grade point average.

The target population for this study was master's students, but the accessible population was limited to the institution from which the sample was drawn. This accessible population comprised 1,539 master's students enrolled in a master's program in business, education, or arts and sciences at a mid-sized research University in the Northeast.

Significance of the Study

This study contributes to the literature on student engagement with master's students, a population that is under-represented in the engagement research. Studying the engagement patterns of enrolled master's students informs how graduate faculty and administrators approach their work with this population.

Why would a dean or a master's program director care about master's student engagement? Long-term enrollment trends may suggest that they need not be concerned with the status of master's education. For example, enrollment in master's programs continues to grow (Bell, 2011). Also, master's students are predominately self-funded, so their financial strain on institutions is minimal. The combination of these two factors might lead a decision maker to be satisfied with the status quo. But research also indicates that engagement is linked to achievement, and achievement is linked to retention - an outcome of genuine concern to administrators given statistics on degree completion (Kuh, 2007; NCES, 2012). Further, a dean or program director is responsible for how and where resources are to be allocated. Making decisions about where to allocate or not allocate resources based on engagement data collected from students is a more defensible approach than making decisions based on experience or anecdotal evidence alone.

As it stands, there is currently little research on master's student engagement, which leaves practitioners either to apply the engagement research on undergraduate students to master's students or to use their tacit knowledge about master's students to inform their programs and policies. The intent of this study was to shed more light on educationally effective practices so that practitioners who work with master's students can be more effective and efficient in delivering an educational experience that best promotes student learning. The field of graduate student services could also benefit from the development of a national survey that could be used across institutions to benchmark best practices. The National Association of Student Personnel Administrators (NASPA) Knowledge Community for the Administrators in Graduate and Professional Student Services has been eager for engagement data and is seeking an instrument to support its measurement. The results could also begin an evidence-based

discussion about how educational administrators differentiate the needs of different types of students (e.g., part-time versus full-time) is an ongoing topic of discussion and debate amongst some graduate administrators and faculty.

Limitations of the Study

This exploratory study had a number of limitations. First, the sheer breadth and diversity of disciplinary fields in master's education made it difficult to include all disciplines for this study. Second, the generalizability of this study was limited to traditional master's programs and did not include online programs or executive-style education programs. Third, this study was conducted at only one institution, so generalizations to other institutions or institutional comparisons could not be made. Fourth, this was a correlational study, which makes causal conclusions impossible. Finally, I interpret this study's findings with twelve years of experience working with master's students at two major research institutions. These limitations, and their potential effects on the study, will be addressed further in the last chapter.

Definition of Terms

For the purposes of consistency and clarity, the following key terms are defined:

Student engagement represents the time and effort students devote to activities that are empirically linked to desired higher education outcomes and what institutions do to promote student participation in these activities (Kuh, 2001; 2003).

The Law School Survey of Student Engagement (LSSSE) is a survey instrument that provides information about the quality of the law student experience and provides data that can help institutions improve the learning experience for students.

The National Survey of Student Engagement (NSSE) is a survey instrument used to gauge the level of student engagement at institutions of higher education. NSSE annually collects

information about student participation in the programs and activities that institutions provide for students' learning and personal development.

Graduate education is a general term that encompasses post-baccalaureate education and includes doctoral programs, master's programs, professional degree programs, and special certification programs.

A master's student is defined as a student enrolled in a program specifically leading to a master's degree (e.g. Master of Arts, Master of Science, Master of Business Administration, and Master of Education) (Bell, 2011). For the purposes of this study, this definition does not include students in graduate certificate programs, online programs, executive education-style programs, or undergraduate students in 5th-year programs.

A full-time student is one who is enrolled for credit in a master's degree program who is engaged full time in activities in their field as defined by the institution's own policy. For the purposes of this study, a full-time student is one who is enrolled in 7 or more credit hours per semester.

A part-time student is one who is enrolled for credit in a master's degree program who is not pursuing graduate work full time as defined above. For the purposes of this study a part-time student is one who is enrolled in 6 or fewer credit hours per semester.

Summary

The number of students enrolling in master's programs is increasing. At the same time, there is limited research about how master's students engage with faculty and peers or participate in activities that are empirically linked to positive learning outcomes in undergraduates. This study used an adapted version of a national instrument to better understand at one institution the educationally effective practices of master's students within five dimensions of engagement and

how they related to personal and academic characteristics. This study also explored the engagement patterns of master's students within the three broad disciplines of education, business, and arts and sciences, and how engagement related to one academic outcome, grade point average.

Chapter Two

Review of the Literature

The purpose of this study was to investigate the dimensions of engagement for master's students and the extent to which master's students are engaged in educationally effective practices that encourage student learning. This study was grounded in the literature on college student engagement and adult learning and was also informed by the literature on graduate education and the graduate student experience. This chapter is organized into four sections. The first section provides an overview of the master's degree, describing its early roots and the current demographics of and trends in master's student enrollment. The second section addresses the graduate student experience, highlighting the available research on both the doctoral and master's student experiences. The third section examines theories of student involvement, student engagement, and adult learning theory. The fourth and final section reviews the instruments that currently exist to measure engagement.

The Landscape of Graduate Education

Graduate education is the pinnacle of the American higher education system, the most prominent and widely respected system of higher education worldwide (Brubacher & Rudy, 1997). Among the positive aspects of the system are vibrant and competitive graduate and professional schools, a diversity of disciplines and degrees, and rigorous academic departments, all of which make the American system the envy of other systems worldwide. In order to provide context for engagement within master's education, it is necessary to examine the history and evolution of the master's degree and the demographic enrollment trends within graduate education.

The Evolution of the Master's Degree

The master's degree is defined as an educational degree that requires one or two years of full-time academic study beyond a bachelor's degree (Rapp & Golde, 2008; United States Bureau of Labor, 2010). Students may choose part-time study that extends this to multiple years of study. The master's degree "occupies a critical juncture in the degree hierarchy at the intersection of undergraduate and graduate education, professional and academic fields, and knowledge production and applications" (Ward, 2005, p. ix). Yet when American colleges and universities were created, graduate education was not a core part of the overall mission.

Historically, American institutions used a classical curriculum that focused on teaching, and colleges focused on the spread of existing knowledge, not the creation of new knowledge (Shils, 1997). In the 18th Century, American higher education followed the British model of education, conferring only baccalaureate degrees for students completing a course of study in the classics (Storr, 1953). The first master's degree was granted as an honorary degree to Benjamin Franklin in 1783 by Harvard University; this practice of granting honorary degrees became common among elite institutions at the time. A new model for graduate education emerged at the University of Michigan that combined the British baccalaureate model with the newly arrived German research model, resulting in the Master of Arts and Master of Science degrees, the first of which was conferred in 1859 (Glazer-Raymo, 2005). The master's degree was generally awarded to students who were willing to pay fees for courses beyond the baccalaureate (Glazer-Raymo, 2005). In the nineteenth and early twentieth centuries, awarded master's degrees grew in number as a need emerged for more advanced subjects that went beyond the baccalaureate curriculum. In academia at the time, the master's degree was recognized as the primary credential for teaching.

The emergence of the American research university and the expansion of doctoral education had a major impact on the status of the master's degree. The founding in 1876 of Johns Hopkins University, a private research university in Baltimore, MD, "was perhaps the most decisive single event in the history of learning in the Western Hemisphere" (Shils, 1997, p.14). Johns Hopkins University was the first American university to confer doctoral research degrees, joined quickly thereafter by Clark University and the University of Chicago (Brubacher & Rudy, 2007). With the founding of the Association of American Universities (AAU) in 1900, the "Ph.D. rather than the M.A. became the gold standard in the graduate degree hierarchy, growing in status and prestige and eclipsing the freestanding master's degree" (Glazer-Raymo, 2005, p.7). Brubacher and Rudy (2007) assert that at the time the doctoral degree did not supplant the master's degree, but was "merely superimposed on it" (p.195). The growth of basic research and doctoral education helped the master's degree flourish in the late nineteenth century, but in the early twentieth century concerns emerged about its purpose and value. Glazer (1986) contends that a major issue was a lack of standardization in the requirements for the master's degree, both in terms of admissions and courses of study. In 1935 the AAU issued a report by the Committee on Problems Relating to the Master's Degree that recommended standards in master's education, including a one-year time-to-degree completion, a unified program of courses, and an examination or thesis prior to completion (AAU, 1935). By the mid-twentieth century, the master's degree suffered from a lack of prestige relative to a doctoral degree, and traditional liberal arts master's degrees were being phased out as enrollments in the professional master's degree programs grew. Examples of these professional master's degrees include the Master of Social Work degree, Master of Fine Arts, and Master of Engineering.

Current Status of the Master's Degree

In the literature prior to the late 20th century, the master's degree was generally characterized as serving one of three objectives: first, as a pathway to a doctorate; second, as a default for students who are unable or unwilling to complete a doctorate; or third, as a terminal degree for many professions (Rapp & Golde, 2008). A more expansive view of the master's degree has emerged in the literature within the last two decades, seen particularly with the growth of professional master's degree programs. Also contributing to the redefinition of the purpose and value of the master's degree are a changing economic landscape and demands for a more highly skilled workforce (Conrad, Haworth, & Millar, 1993; Council of Graduate Schools, 2009a; Glazer-Raymo, 2005). Glazer (1986) describes a paradigm shift in master's education, moving from the traditional arts and sciences model to one that is "overwhelmingly professional…, largely terminal, and …practice oriented" (p. 84). Conrad et al. (1993) posit that the master's degree is now commonly accepted as a significant and often terminal credential indicating advanced preparation and training in a specialized area of study, most often for the purposes of entry into or advancement within a professional field. Glazer-Raymo (2005) asserts that the master's degree has evolved into an entrepreneurial credential that gives students more diverse and marketable choices in the workplace and brings the university much closer to the corporate world.

By 2018 it is expected that 2.5 million professional jobs will require graduate degrees, with the largest percentage of growth for master's degree holders in healthcare and education (Wendler, Bridgeman, Cline, Millett, Bell, & McAllister, 2010). Much of the growth in the number of master's programs is due to the emergence of professional master's programs that combine discipline-specific coursework with practical workplace skills (CGS, 2006).

Professional Science Master's (PSM) programs provide an alternative to a Ph.D. for students who want to pursue careers in mathematics and science without the commitment required for a doctorate (CGS, 2006; Wendler, et al., 2010). The curriculum for PSM programs focuses on workplace needs, augmenting master's-level coursework with business fundamentals and an emphasis on team building. Because master's programs are attuned to the growing needs of the workforce, they can more easily adapt to changing practices than might doctoral programs (CGS, 2006).

Today, master's education is the largest segment of graduate education in the United States. Overall trends and demographics also support the idea that the master's degree and master's education in the U.S. are in a period of resurgence and change.

Demographics

Within the last decade, the overall composition of graduate enrollment has changed, with enrollment in doctoral programs leveling off and enrollment in master's programs increasing (Tokuno, 2008). Attempts to collect and report accurate national data on master's student demographics have been difficult due to a number of factors, including a large proportion of part-time master's students, vast differences in programs of study, and wide variations in students' degree objectives (CGS, 2005).

As mentioned previously, enrollment trends indicate that graduate and professional education continues to grow (Snyder, Dillow, & Hoffman, 2009). A National Center for Education Statistics report showed that of all students enrolled in graduate education in 2009, 65.3% of students were enrolled at the master's level, 15.1% at the doctoral level, and 8.7% at the first-professional degree level such as law, nursing, or dentistry among others (Knapp, Kelly-

Reid, & Ginder, 2011). The fields with the highest number of master's degree recipients are education (26.5%), business (24.4%), and arts and sciences (12.9%) (Bell, 2011).

In a 2010 Council of Graduate Schools study, women comprised the largest shares of enrollees in health sciences (79.8%), public administration and services (75.3%), and education (74.8%). Half (49.4%) of all female enrollees in fall 2010 were in one of these three broad fields. Men comprised the majority of graduate students in four broad fields in fall 2010—engineering (77.7%), mathematics and computer sciences (70.8%), physical and earth sciences (62.5%), and business (54.1%) and these four broad fields accounted for more than half (51.1%) of all male enrollees (Bell, 2011).

Age demographics for graduate students are collected every four years by the National Postsecondary Student Aid Study (NPSAS) (Council of Graduate Schools, 2009b). The NPSAS study showed that the average age for graduate students has not changed, holding steady at 32 years across all degrees and disciplines. Data from the Chronicle of Higher Education Almanac support this, with the largest percentage of full-time master's students (45%) ranging in age from 25-34 years. Part-time master's students are significantly older, with 49.7% aged 35 years or older. Trends indicate that the number of graduate students over the age of 35 will continue to rise. Between 1987 and 2007, there was an 87% increase in graduate students over 40 years of age, from 267,000 to 500,000 students. These reports do not disaggregate for full-time versus part-time students.

With regard to the race and ethnicity of master's students, a National Center for Education Statistics (NCES) survey found that White students comprise the largest percentage of enrolled students at 66.1% while Black students represent 12.9%, Asian-Americans 10.3%, and Hispanics 8.5% (NCES, 2010b). In the past ten years, there has been a 5% increase in Black

student enrollment, a 4% increase in Hispanic student enrollment, and a 0.7% increase in Asian-American student enrollment in master's program. In a U.S. Census Bureau survey of educational attainment, 13.7% of Asian Americans reported attaining a master's degree, while 8.6% of Whites, 5.3% of Blacks, and 2.5% of Hispanics reported the master's as the highest degree attained. This number increases if an assumption is made that most doctoral degree recipients also have a master's degree, but the relative percentages for attainment across racial groups are consistent (Chronicle Almanac, 2010).

There is also diversity in family structure (e.g. marital status and number of dependents) of master's students. In the same NCES study above, 48% of enrolled students reported their status as unmarried with no dependents and 10% were unmarried with dependents. Twenty-five percent of students reported being married without dependents and 16.4% reported being married with dependents.

In 2004, the Council of Graduate Schools (CGS) launched a multi-year study of international graduate application, admission, and enrollment trends (CGS, 2010b). While first time international student enrollment remained steady and then increased slightly from 2009 to 2010, overall international student enrollment declined slightly over the same period (CGS, 2010b). The fields of business, engineering, and biological sciences have the highest percentage of international students enrolled.

Degree completion data for master's students are sparse. Much of the attention on the problem of graduate student attrition has focused on doctoral programs, but there is a growing need to gather data on master's students (Wendler et al., 2010). In February 2011 the Council on Graduate Schools launched a study on master's degree completion in the science, technology, engineering, and mathematics fields (Council of Graduate Schools, 2010). This study

administered surveys to current master's students, degree completers, and those who have not completed their degree. When finalized, the study will provide completion and attrition data by program and student demographic characteristics.

It is important to examine the literature on the graduate student experience, including organizational support structures, standards which guide services, and research on how students experience their graduate program.

The Graduate Student Experience

Organizational Support Structures

In American higher education there rarely is a single, organizationally identifiable structure for supporting graduate students. Universities have traditionally relied on the academic departments rather than traditional student affairs departments to support graduate students in all aspects of their campus experience (Guentzel & Nesheim, 2006). As Pontius and Harper (2006) outline, there are four factors that contribute to this practice: (a) at most universities, undergraduate enrollment is larger than graduate enrollment so campus resources are directed to the undergraduates; (b) developmentally, the undergraduate student population requires more attention; (c) there is a sense that the academic department already meets the needs of graduate students; and (d) graduate students do not need help navigating the institution as they previously learned these skills as an undergraduate. Graduate students "generally operate in an environment with less guidance requiring significant self-motivation in structuring progress through graduate programs" (Peters, 1997, p.73). Yet there has been a call by some practitioners to extend services traditionally utilized by undergraduate students to the graduate student population (Brandes, 2006; Golde & Dore, 2001; Lovitts, 2001). These services include counseling, career development, social opportunities, community space, and residential living opportunities. Many

of these services fall under the realm of student affairs on most campuses, however academic departments are fulfilling many of these roles for graduate students (Brandes, 2006).

The belief that graduate students do not need the same services as undergraduate students is a common assumption in the field of student affairs (Woodard, Love, & Komives, 2000). Woodard et al. (2000) claim that it is a heresy that "the field of student affairs continues to focus almost solely on the 'traditional' undergraduate college student" (p.35) rather than serves all students. Furthermore, a 2010 report from the American College Personnel Association (ACPA) states that "we can no longer afford to build metaphorical fences between 'student affairs professionals' and others who also are engaged in fostering student success" (ACPA, 2010). These fences tend to make divisions along organizational reporting lines, which become fragmented by disciplinary and functional specializations (Blimling, Whitt, & Associates, 1999; Boyer Commission, 1998). This fragmentation typically manifests itself via the separation of services with academic affairs and student affairs working independently. Nonetheless, evidence suggests that students learn most effectively in seamless learning environments (Kuh, 2009a). While student affairs divisions are seeking opportunities for close collaboration with academic affairs, graduate students appear to be seeking more co-curricular support services from student affairs (Brandes, 2006; Elkins-Nesheim, Guentzel, Kellogg, McDonald, Wells, & Whitt, 2007).

Academic departments must be deliberate in considering all student needs, including how to connect graduate students to broader campus support services (Conrad, Haworth, & Millar, 1993). The literature addresses two challenges in meeting the needs of master's students. First, with regard to campus services, graduate students are "the single most ignored block of students in relationship to services provided" (Woodard et al., 2000, p. 36). There is often a tension between what students want and need and what academic departments alone can provide (Golde

& Dore, 2001). Graduate program administrators cannot rely on graduate advisors or mentors alone to handle problem areas (Anderson & Swazey, 2007). In their study, Anderson and Swazey (2007) surveyed 1,520 doctoral students about a wide range of experiences within their graduate program, including the reasons they chose the particular program, the organizational culture, the work requirements, the evaluation of their work, and their overall assessment of their experience. The results suggested that it is the collective responsibility of faculty, staff, and student peers to foster an environment that helps students persist through their program. This supports Brandes' (2006) position that there is a desire – by students as well as administrators – to have a range of support options available on campus. Further, given the diversity of the master's student population and the variety of organizational structures for graduate education, it is difficult to generalize the master's student experience (Tokuno, 2008).

Analyzing data compiled from professional associations, internet searches, interviews, and inspection of institutional web pages, Brandes (2006) identified the four most common staffing practices at research universities that support graduate students. These practices vary in terms of the populations served, visibility on campus, collaborations with other departments and divisions, and comprehensiveness of the services provided. These four practices include:

- A graduate school houses an assistant or associate dean of student affairs, director of graduate student services, or a director of the graduate center. This person usually reports to the graduate school dean and supports students within the particular graduate school.
- A division of student affairs houses a director of graduate student life or assistant or associate dean, often with an indirect reporting line or strong working

relationship to the graduate and professional school dean's offices. This position typically supports all graduate students on campus.

- A provost or academic affairs division houses a graduate student center that serves all graduate students. This typically occurs for institutions at which there is no graduate school on campus and no mechanism for supporting graduate students within student affairs.
- A graduate student council or government employs a student affairs professional to work for the organization, with indirect reporting line to either a graduate school or student affairs division. While rare, this typically occurs at institutions with strong, independent student associations and significant funding from student fees.

The diversity of support structures for graduate students complicates the benchmarking of best practices across institutions. Much of the work exploring current challenges and best practices is being done by professional associations. Within the field of student affairs, organizations such as the American College Personnel Association (ACPA) and the National Association of Student Personnel Administrators (NASPA) have formalized support for graduate students through national networks of support (ACPA, 2010; NASPA, 2010). Each organization has a sub-group dedicated to practitioners working with graduate and professional students, and they advance the sharing of best practice through conference workshops, seminars, and online training. Representatives from ACPA and NASPA were instrumental in the creation of the new Council for the Advancement of Standards in Education (CAS) standards for graduate and professional students. Within graduate education in general, the Council of Graduate Schools (CGS) provides advocacy, funding for research, and a forum to share best practices within

graduate education. The CGS website has a wealth of data on enrollment and degree information, the financing of graduate education, and pressing issues affecting the field (CGS, 2011). As previously mentioned, in 2011 the Council of Graduate Schools launched a master's completion study for the science, technology, engineering, and mathematics fields.

Standards for Graduate and Professional Student Services

In response to a growing call from graduate academic administrators and student services practitioners to create standards to guide professional practice, CAS developed a set of standards by which universities can measure graduate programs and services (CAS, 2008). The purpose of these standards is to develop functional area and academic preparation standards for student learning. The Graduate and Professional Student Programs and Services standards (GPSPS) are explicit with regard to assessment of the graduate student experience:

> Graduate and Professional Student Programs and Services must establish systematic plans and processes to meet internal and external accountability expectations with regard to program as well as student learning and development outcomes. GPSPS must conduct regular assessment and evaluations. These should include assessment of (a) demographics and characteristics of the students; (b) student needs, experiences, and learning outcomes; (c) overall use of and satisfaction with programs and services; (d) attrition and persistence rates, such as time to degree completion and reasons for leaving prior to completion; (e) post-graduation career plans and outcomes; (f) adherence to national standards; and (g) overall satisfaction with services and environment (p. 245)

These standards are intended to assess doctoral programs, master's programs, first-professional programs, and online institutions. The available literature on the graduate student experience shows a wide range of research on the doctoral student experience: research that may

help inform campus administrators when benchmarking many of the CAS Standards. However, the same cannot be said for the literature on the master's student experience. As summarized in Alexander and Maher (2008), the available research on master's students has focused on goal attainment, transition issues, and the role played by advisement. While important, the limited scope of the available research provides impetus for scholars to investigate the master's student experience using the CAS Standards as a guide. The CAS Standards, however, are voluntary and used for internal accountability only. Thus, CAS Standards are somewhat limited to the extent to which any institution uses them for benchmarking or external accountability purposes.

Master's Education and the Master's Student Experience

There is a sufficient literature on the master's degree and master's education to lay the groundwork for exploration of the student experience within this context. This literature review draws from two documents to build an understanding of the landscape of master's education. Glazer's 1986 ASHE Report "*The Master's Degree: Tradition, Diversity, and Innovation*" gives a thorough account of the history, functionality of, and trends in master's education. The focus of the ASHE report is on the master's degree, not necessarily the master's student experience, yet the author does an excellent job of providing evidence of the breadth and depth of master's education in the United States (Glazer, 1986).

More recently, Glazer-Raymo (2005) analyzed five professionalized master's degree programs, nine arts and sciences master's degree programs, and three interdisciplinary programs, specifically investigating how these programs embrace innovation and change. Glazer-Raymo's (2005) research found that professional master's programs, highly influenced by market forces, corporate culture, and technological changes, are now replacing arts and sciences master's programs at the core of the university's initial mission. The work of Glazer (1986) and Glazer-

Raymo (2005) is fundamental to understanding master's education, yet it does not address the student experience.

The book *A Silent Success: Master's Education in the U.S*. (Conrad et al., 1993), in addition to providing a broad overview of master's education, includes one of the few research studies that explore how master's students experience their program. Through a series of interviews with key stakeholders including master's students, faculty, and administrators, Conrad et al. (1993) explored key decision-making points for students during their master's program. These decision points are acted upon by stakeholders (students, faculty, program administrators) and include the approach to teaching and learning, overall program orientation, departmental support, institutional support, and student culture. Each of the decision points provides an opportunity for stakeholders to affect the student experience, and the authors developed a model that explored the approaches and impacts within each. Still, the actual *engagement* practices of master's students remain poorly understood.

The existing research on the master's student experience is mostly anchored in the perspectives of faculty and administrators, instead of the master's students themselves (Conrad, Duren & Haworth, 1998). No single academic or professional organization has specifically addressed the needs of master's students as part of its core mission (Brandes, 2006; Tokuno, 2008).

Master's programs tend to be income generators for the institution; master's students often graduate with high debt loads because institutions do not fund master's students to the extent that they do doctoral students (Conrad et al., 1993). Doctoral students in the United States represent 73% of graduate students who receive a teaching assistantship, research assistantship, or tuition waiver to support their graduate work, while in contrast master's degree-seeking

students rely heavily on student loans, work-study grants, and personal contributions to finance their education (Wendler et al., 2010).

A 2010 study by the Council of Graduate Schools asked graduate deans to identify the three most pressing issues or challenges they face (CGS, 2010a). The study included 146 doctoral institutions, 57 master's-focused institutions, and 14 baccalaureate institutions. The three most pressing issues reported by those deans working with master's students were enrollment management/student recruitment (58%), managing the infrastructure of the graduate school (52%), and graduate student financial support (45%). These same deans ranked student services and career placement as the two lowest priorities (3% and 1% respectively). The deans working with doctoral students identified student services as a slightly higher priority at 16%, though still not in the top three. Apparently, student services are not pressing issues to deans in graduate education.

The literature about the doctoral student experience can also help frame research on the master's student experience.

The Doctoral Student Experience

There is a wealth of literature on doctoral education and the doctoral student experience, which has emerged over the last two decades (Bieber & Worley, 2006). A primary task of such research is to better understand "the nature of and developmental paths taken by doctoral students" (Golde, 2005, p.719). Persistent problems like high rates of attrition, limited opportunities within the academic job market, excessive time to degree, and inadequate training for teaching and research have given rise to research studies that seek to learn more about the doctoral student experience (Gardner & Barnes, 2007). Within the literature, several themes emerge that specifically address core aspects of the doctoral experience. These research themes

include variables like attrition and time-to-degree, the socialization process, the student-advisor relationship, and more recently how doctoral students experience the complexities of graduate school (Bieber & Worley, 2006; Bowen & Rudenstein,1992; Council of Graduate Schools, 2010). Some of these themes, particularly the socialization process and student-advisor relationship may help inform research on the engagement practices of master's students.

Student Engagement: Theoretical Underpinnings and Measurements

Student affairs practitioners have increasingly focused on the concept of student engagement as it relates to students' persistence, learning, and overall campus experience. As Kuh (2009a) states:

> The engagement premise is straightforward and easily understood: the more students study a subject, the more they know about it, and the more students practice and get feedback from faculty and staff members on their writing and collaborative problem solving, the deeper they come to understand what they are learning and the more adept they become at managing complexity, tolerating ambiguity, and working with people from different backgrounds or with different views (p.5).

The engagement construct has evolved over time and incorporates research on student involvement, time on task, academic and social integration - good practices in higher education (Kuh, 2009b). Student engagement has its roots in involvement theory, which focuses on the students' time and effort in educationally purposeful activities and what institutions do to promote these activities (Kuh, 2005; Pascarella &Terrenzini, 2005; Pontius & Harper, 2006). This study also called on the literature on college student involvement and learning, with particular emphasis on Alexander Astin's (1984) theory of student involvement, Vincent Tinto's (1975; 1993; 1998) theory regarding the effects of social and academic integration and student

departure, and Ernest Pascarella's (1985) and later Pascarella and Patrick Terenzini's (2005) general causal model for assessing the effects of the environment on student learning. The basic tenets of these higher education theories are a foundation for student engagement.

A document influential to the development of student engagement and involvement theories is Chickering and Gamson's (1987) *Seven Principles of Good Practice in Undergraduate Education*. Chickering and Gamson posit that there are particular institutional practices that lead to high levels of student engagement. These practices include encouraging intentional student and faculty interactions, developing reciprocity among students, emphasizing student time on task, respect for different ways of learning, communicating high expectations, giving prompt feedback, and respecting diverse talents. Pascarella and Terenzini (1991) and Astin (1993) followed Chickering and Gamson's work by developing their own theories of student involvement, which emphasized the simple premise that the more time and effort spent on purposeful activities, the more successful the student will be (Kuh, 2001).

Student Engagement and Involvement Theory

Astin's (1977) theory of student involvement is a seminal theory in the understanding of student engagement. The most basic tenet of Astin's (1977; 1993b) theory is that the more time and energy undergraduate students invest in both the academic and co-curricular aspects of the collegiate experience, the more learning is enhanced. Astin (1975) describes involvement as a multifaceted concept that has academic, social, and political dimensions. Undergraduate involvement has been linked to retention rates, academic performance, and levels of career-related competencies (Gardner & Barnes, 2007). Astin's (1984) involvement theory has five basic premises: (a) involvement is an investment of time and energy in various objects: (b) involvement occurs on a continuum; (c) involvement has both quantitative and qualitative

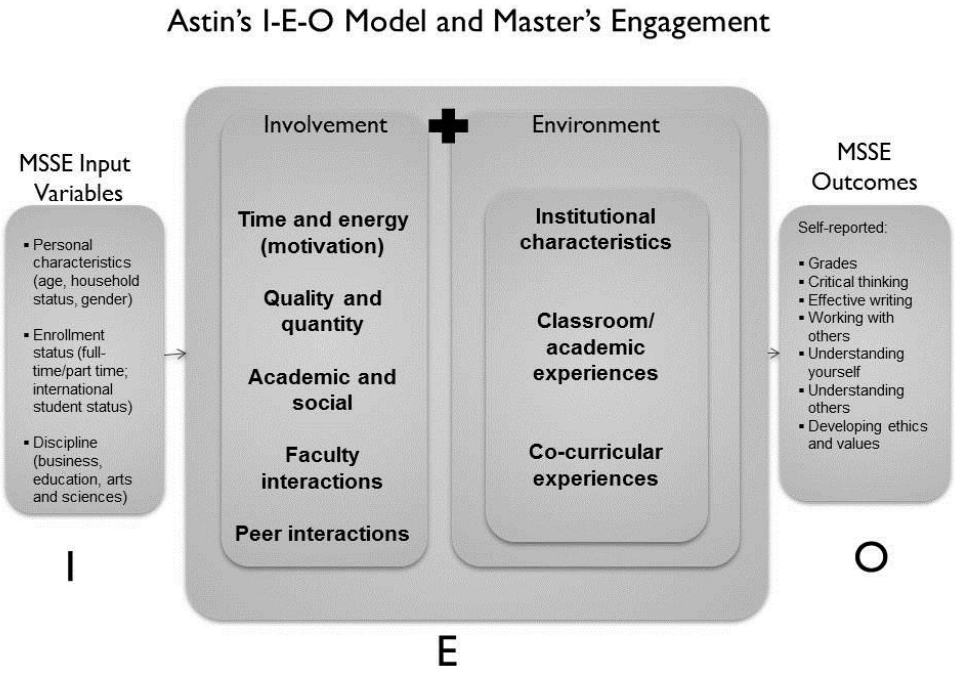
features; (d) involvement is directly proportional to the quality of the student involvement in the program; and (e) the effectiveness of any practice is defined by how much that practice increases student involvement. The literature on undergraduate involvement provides similar evidence that a high level of involvement is linked to a number of positive outcomes, including overall satisfaction with the college experience, academic achievement, and persistence (Astin, 1993; Kuh, 2001). Astin's work was particularly instrumental in the movement toward connecting effective educational practices to student outcomes (Wolf-Wendel, Ward, & Kinzie, 2009). These outcomes range from disciplinary skills and knowledge to grade point average to time-to-degree measures.

Astin (1991) developed a framework in which to explore student outcomes. This model, called the input-environment-output (I-E-O) model, looks at the interaction of three factors on student growth during higher education: (a) the characteristics of a matriculating postsecondary student (inputs); (b) the various programs, policies, faculty and peer interactions, and other educational experiences to which the student is exposed (environment); and (c) the characteristics of the student after completion (outputs) (Astin, 1991; Terenzini & Upcraft, 1996). In examining the college environment for influences on students' development and retention, Astin (1996) concluded that the most important type of involvement is academic involvement, including involvement with faculty and with student peer groups. Invoking the core tenets of Astin's (1984) theory of involvement within the I-E-O model may be of particular use for an engagement study with master's students. The model is a useful tool for examining the activities and experiences over which institutions have some programmatic or policy control (Terenzini & Upcraft, 1996). Four specific characteristics from the I-E-O model in particular may inform a study on master's student engagement, including peer group interactions, faculty

interactions, classroom experiences, and co-curricular experiences. Figure 1illustrates how Astin's model can be used for a study on engagement with master's students.

Figure 1

Astin's Input-Environment-Output (I-E-O) Model and Master's Engagement



One of the most influential theories of student persistence comes from Tinto (1975; 1982; 1993; Pascarella, Duby, & Iverson, 1983). Tinto (1975) developed a longitudinal, explanatory model called the Student Integration Model (SIM) that explains the concepts and processes that influence an individual's decision to leave an institution. At the model's conceptual core is the concept of person-environment fit: the degree of fit between the student and the institutional environment (Pascarella, Terenzini, & Wolfe, 1986; Tinto, 1975). Tinto (1975) asserts that a student's decision to leave an institution is due to an incongruity between that student's intentions and their interactions with others; Tinto referred to these two forms of interactions as social and academic integration. Social integration is the amount of interaction a student has with

peers while academic integration is the degree to which a student is incorporated into the academic fabric of his or her institution (Tinto, 1975). Theoretically, academic and social integration have a direct effect on student departure decisions, with higher levels of integration associated with a lower probability of departure. Students who are engaged in both of these realms – academic and social - are most likely to persist to program completion.

Tinto (1993) suggests that faculty members are the primary agents of academic integration for doctoral students. Faculty relationships, not peer relationships, are seen as more important to degree completion. Extending Tinto's (1993) work, Golde (2005) explored the dynamic interplay between students and the academic department with doctoral student non-completers from four academic departments at a medium-sized Midwestern university after they left the program. The goal of the study was to understand the lived experience of doctoral students through their own words. Golde (2005) used semi-structured interviews to collect data from 58 doctoral students who had left their doctoral program in the departments of history, biology, geology, and English. The findings showed that lack of student fit –with the department, with the academic discipline, and with the advisor – were the predominant reasons why students left. Isolation emerged as a primary theme as well, with isolation from peers and faculty and the absence of collegial and supportive relationships cited as contributing to attrition. Doctoral students often leave their studies because they have not integrated the parallel academic and social systems in their program (Golde, 2000).

Tinto's (1975) model suggests that at the heart of student success is the student's involement. "One thing we know about persistence is that involvement matters. The more academically and socially involved individuals are - that is, the more they interact with other students and faculty - the more likely they are to persist" (Tinto, 1998, p. 167).

While Tinto's (1975) theory can be applied to both graduate and undergraduate student experiences, the relative importance of social versus academic integration will be different for graduate students, with a heavier focus on academic rather than social integration (Pascarella & Terrenzini, 2005; Tinto, 1993). This acknowledgement that the graduate experience may require less integrated of both the social and academic realms seems to contradict Tinto's (1975) earlier work which asserts that extreme integration in either realm would likely cause problems in the other realm. In fact, one of the most consistent criticisms of Tinto's 1973 Student Integration Model (SIM) is that it only applies to traditional-aged, residential college or university students (McCubbin, 2003). Bean and Metzner (1985) contend that Tinto (1993) does not look at factors outside of the institution that might exert influence on non-traditional, adult students' ability to integrate their experiences. These factors include work, family, and other external responsibilities, all of which may limit either the motivation for, or time dedicated to, involvement.

Bean and Metzner (1985) proposed an extension of the Tinto (1975) model called the student attrition model (SAM). The SAM emphasizes the role that friends, family, and other networks of support play in student attrition. These students who rely on external networks may not have the time or interest in the internal support networks that are a core part of the Tinto (1975) model. In a study of Latino students, Torres and Solberg (2001) found that social integration did not predict persistence among Latino students in the Tinto (1975) model. The researchers speculated that these results may be due to the students being part of an ethnic minority group who may not have access to a wide support structure on campus. Simply put, the scope of Tinto's (1975) SIM model may not account for attributes or behaviors of students who are different from traditional-aged, majority, residential students.

Tinto (1982) responded to the criticism by acknowledging the shortcomings of the model, most notably that the SIM model was not intended to explain all facets of social or academic integration. He also believed that some researchers had overextended his model. Tinto (1982) admitted that rates of attrition over time remained steady despite changes in the demographics of the student body, changes in institutional organization, and other societal changes. While Tinto's contributions are valuable, the shortcomings call into question whether Tinto's (1975) SIM model has staying power in explaining attrition in non-traditional student populations.

Pascarella (1985) offers a broader view of student involvement in his *General Causal Model for Assessing the Effects of Differential Environments on Student Learning and Cognitive Development.* Pascarella's model provides a framework for assessing student outcomes and explaining the factors that affect those outcomes. The model hypothesizes relationships between certain variables, and posits that academic growth is a function of the direct and indirect effects of five main sets of variables, as well as their interactions, including: (a) student background characteristics; (b) organizational characteristics; (c) institutional environment; (d) interactions with faculty and peers; and (e) quality of effort (Pascarella & Terenzini, 1991; 2005). Pascarella (1985) also theorized relationships among these variables. In particular, the combination of the first variable - students' background and pre-college characteristics, and the second variable - structural and organizational features of the institution, shape the third variable - a college's or university's environment. All three of these variables influence the fourth variable - interactions with faculty and peers. Finally, the fifth set of variables – quality of student effort – is shaped by the four preceding sets of variables. Research by Pascarella (1985) found that the interaction of students with faculty and their peers has both a direct and indirect effect on cognitive outcomes,

while structural characteristics and environmental characteristics have only indirect effects on these outcomes (Franklin, 1995).

Adult Learning Theory

Traditional student development theories for campus engagement may not hold true for adult students because adult students bring with them life experiences that inform their learning experiences (Kasworn, 2003; Kilgore & Rice, 2003; Zemke, 2002). Some literature on adult learning suggests that adult students learn differently than traditionally-aged college students (Knowles, 1990). Despite the age of the typical master's student, the author's review of the adult learning literature suggests that graduate students are infrequently the focus of research on adult learning. Yet given what we do know about how adult learning is conceived and the demographic diversity of master's students, research on adult learning may still have implications for this study.

The terms pedagogy and andragogy represent two broad models that describe how instructors teach students of different ages (Taylor, 1998). Pedagogy is the art and science of teaching children and is the predominant model for teaching traditional-aged undergraduate students in American higher education (Hiemstra & Sisco, 1990; Knowles, 1990). Andragogy is the art and science of teaching adults and helping adults learn (Knowles, 1980; Knowles, Holton, Swanson, 2005). Malcolm Knowles (1980) explored the andragogy model as a parallel theory to pedagogy. It arguably gives coherence and direction to adult education practice. The basic tenets of andragogy include the importance of a cooperative learning climate, a proper diagnosis of the needs and interests of the student, a clear set of learning objectives, and the provision of knowledge that can be applied immediately (Knowles, 1980; Reeves & Pedulla, 2012). Knowles identified certain conditions under which adults learn most and introduced the concept of a

learning climate. As summarized in Taylor (1998), drawing on the earlier work of educator Eduard Lindeman (1926), Knowles (1980) articulated six tenets about how adult students learn:

1. *Self-concept:* As a person matures, he or she moves from being a dependent personality to one who is a self-directed human being.

2. *Experience*: As a person matures, he or she accumulates a growing reservoir of experience that becomes a resource for learning.

3. *Readiness to learn:* As a person matures, his or her readiness to learn becomes oriented to the development task at hand.

4. *Orientation to learn*: As a person matures, his or her time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his or her orientation towards learning shifts from one of subject-centeredness to one of problem-centeredness.

5. *Motivation to learn*: As a person matures, the motivation to learn is internal. Although adults feel the pressure of external motivators, they are most driven by internal motivation and the desire for self-esteem and goal attainment.

6. *The need to know.* Adults need to know the reason for learning something. In adult learning the first task of the teacher is to help the learner become aware of the need to know.

Merriam (2001) asserts that the theory of andragogy and the ideas about how adult students learn can help educators understand that adult learners are problem-centered, interested in learning about subjects of direct relevance to them, and need to be involved in their own education.

The literature describes the optimal adult learning environment in various ways, though two specific definitions most closely describe the environments within master's education. Hiemstra (1991) defines a learning environment as "all of the physical surroundings, psychological or emotional conditions, and social or cultural influences affecting the growth and development of an adult engaged in an educational enterprise" (p. 8). Factors in the learning environment exert a powerful influence on the psychological, social, and cultural growth of adult learners (Hiemstra, 1991). Tagiuri (1968) theorized the environmental climate to comprise four key facets: ecology (building on classroom characteristics), milieu (individuals' characteristics), social system (interpersonal or group-patterned relationships), and culture (beliefs, values, and expectations). The literature on the doctoral student experience underscores the importance of the environmental aspects of graduate education, including advisor and peer relationships, the cultural norms of the department, and the goals that each student brings with them to the academic program (Baird, 1993; Golde, 1998; Mendoza, 2007). Assessing the environment and climate in which students learn is an essential component to engagement research (Kuh, 2005; LSSSE, 2010).

Adult learning theory can provide a foundation on which student and academic affairs professionals might design support structures and programs to meet the needs of master's students. If adults expend energy and time on those tasks they deem valuable, then faculty and administrators must partner through cooperative, meaningful dialogue to create engagement plans for graduate students that are in accord with adult learning principles and thus support student learning (Pontius & Harper, 2006).

Extending Engagement Research to Graduate Students

While the literature on graduate student engagement is sparse, there is probably much to learn from the research on undergraduate engagement. Research shows that engagement is the single best predictor of students' learning and development (Brint, Cantwell, & Hannerman, 2008; Kuh, 2001; Pascarella & Terrenzini, 1991). Research drawing these conclusions defines engagement broadly enough to apply it to graduate students. Certainly, the activities in which graduate students participate and how the academic departments and university support them can be investigated empirically. These educationally purposeful engagement activities include those endeavors in which students participate both inside and outside of the classroom (Astin, 1993; Hu & Kuh, 2002).

The educational outcomes associated with purposeful engagement have been researched within an almost exclusively undergraduate population, yet the wide range of outcomes may be relevant in graduate studies. These outcomes include persistence, cognitive-intellectual skill development, practical competency development, and ethical development (Pontius & Harper, 2006). Astin (1999) recognizes that the time and energy that students have to dedicate to their academic experience is finite, and that non-classroom pursuits often compete with academic interests. Though research suggests that non-traditional students also benefit from engaging in educationally purposeful activities, the types of activities in which graduate students participate do differ from undergraduate students (Guentzel & Nesheim, 2006; Pascarella & Terenzini, 2005). Further, to apply undergraduate engagement principles to a graduate student population assumes that what works for undergraduate students will work for graduate students (McCormick, 2010).

In 1997, the American College Personnel Association (ACPA) and the National Association of Student Personnel Administrators (NASPA) identified a set of principles for good practice in student affairs (ACPA & NASPA, 1997). This was one of the first attempts to build professional consensus around the programming that can help orient and standardize student affairs practice with regard to engagement for undergraduate students (Blimling & Whitt, 1999). These principles state that good practice in student affairs:

1. Engages students in active learning
2. Helps students develop coherent values and ethical standards
3. Sets and communicates high expectations for student learning
4. Uses systematic inquiry to improve student and institutional performance
5. Uses resources effectively to achieve institutional missions and goals
6. Forges educational partnerships that advance student learning
7. Builds support and inclusive communities

Elaborating on the work of Chickering and Gamson (1987) and the ACPA/NASPA paper (1997), Pontius and Harper (2006) articulated a set of philosophical principles for student affairs practices around graduate student engagement. These include support for underrepresented populations, a focus on orientation to the institution, the importance of communication, an emphasis on community building across academic units, the creation of engagement plans for students, effective career counseling, and a systematic approach to assess satisfaction, needs, and outcomes for students.

As pointed out earlier, engagement theory was developed as it pertains to the traditional-aged population (Alexander & Maher, 2008). The little research on *graduate* engagement has largely extended the undergraduate model of engagement to fit the specific needs of the graduate

population (Pontius & Harper, 2006). However, there are differences between undergraduate and graduate education in student demographics, developmental stages, and the university structures of support – all of which pose challenges for educators who want to promote and assess graduate student engagement. Still, there is nascent literature that is exploring graduate student engagement and involvement (Caulfied, 2010; Pontius & Harper, 2006).

In a study of 91 master's students, Caulfield (2010) explored the conditions under which graduate students were most likely to learn, identifying a hierarchy of learning tasks from least to most engaging. Contradicting adult learning theory, the results showed that value and effort were predictive of student engagement, but that extrinsic motivating factors (e.g., attendance expectations and grades) related more to engagement than intrinsic factors. Peer-evaluated small group work were also good overall predictors of student engagement as were tasks in which students can directly apply the learning to their professional or personal life; the latter is consistent with adult learning theory.

In a study using socialization theory as a framework for assessing graduate student engagement, Gardner and Barnes (2007) interviewed ten doctoral students in higher education administration from five different institutions. Socialization theory consists of three key elements—knowledge acquisition, investment, and involvement—all which lead to students identifying with and preparing for a professional role (Golde, 2003). Not surprisingly, in this study participants reported that graduate student involvement is entirely different than undergraduate involvement, particularly in terms of the types of activities in which students participate. A consistent theme in the study was that students mentioned professional development in their discussions about involvement. Professional development is a core component of socialization theory, linking involvement to future career goals (Golde, 1998). The

study by Gardner and Barnes (2007), which studied doctoral, not master's students, also indicates that peers influence students' decisions to become involved. Involvement at the graduate level means participation in activities outside the classroom with faculty and fellow graduate students (Girves & Wemmerus, 1988). Gardner and Barnes' study, students described engagement as holding a position within the school or department governing body, sitting on a committee, attending lectures and academic events, and participating at regional and national academic conferences.

Instruments that Measure Student Engagement

The National Survey of Student Engagement

The National Survey of Student Engagement (NSSE) is the most widely used instrument for assessing undergraduate student engagement. The NSSE is administered by the Center for Postsecondary Research at Indiana University to first year and senior year students at four year colleges and universities (NSSE, 2011). In 2011, 537,000 students from 751 institutions in the United States and Canada completed the survey (NSSE, 2012). The conceptual framework for the instrument is based on engagement theory, which asserts that what students do during college matters more to positive educational outcomes than who they are, or even where they choose to go to college (Kuh, 2001; Pascarella & Terenzini, 1993). Specifically, the NSSE is designed to assess the extent to which students are engaged in good educational practices and what they gain from their college experience (Kuh, 2001). The NSSE is a self-reported instrument that asks students to reflect on how they spend their time and what institutional structures support them with regard to their engagement. The NSSE results provide a set of national benchmarks that participating schools can then use to identify programs and services for improvement.

The specific design of the NSSE was intended to mirror the practices outlined by Chickering and Gamson (1987) in *Seven Principles of Good Practice*. NSSE narrowed their focus to five benchmarks of engagement: (a) level of academic challenge, (b) active and collaborative learning, (c) student-faculty interaction, (d) enriching educational experiences, and (e) supportive campus environment. Chapter three will provide more detail about each of the benchmarks.

The NSSE does not directly measure engagement behaviors or student outcomes and therefore has attracted its share of detractors. Arum and Roksa (2011) challenge whether students can accurately self-report their own engagement and learning. In essence, researchers ask "as young adults, are they aware of what they do not know? If students cannot identify or define learning and critical thinking skills, how will they know if they have obtained these?" (Arum and Roska, 2011, p. 27). This criticism highlights the fact that indirect measures, like the NSSE, are often insufficient to measure student engagement and learning. Even Kuh (2009) recognized that the NSSE does not assess the quality of active and collaborative learning, rather it quantifies the frequency that students indicate they engage in these activities.

In a strong critique of college student surveys, Porter (2009) asserts that the National Survey of Student Engagement (NSSE) is seriously flawed with questionable validity. He states that the availability of quick, inexpensive instruments that claim to measure learning has many institutions relying on these indirect measures, rather than more direct (albeit more costly and time consuming) measures (e.g., observations, or cognitive test data), to gauge student learning. He notes that the field of higher education "requires an ambitious research program to reestablish the foundation of quantitative research on students" (Porter, 2009, p.45) and that current efforts like the NSSE fall short of academic rigor. Specifically, Porter (2009) criticized the relevance of

some NSSE questions. For example, Porter (2009) says that state of knowledge about human cognition and survey response requires that respondents must be able to understand and make meaning of the question. He painstakingly goes through a number of items and points out where respondents might get confused in terms of the instrument's content (e.g., terminology). For example, students may not understand what critical thinking is, how an instructor is defined, or how a student distinguishes between serious and frivolous conversations. In response to Porter's (2009) criticisms, NSSE director Alexander McCormick acknowledged some of the instrument shortcomings, particularly around asking its attitudinal questions, but also said that the problems are overstated and that Porter (2009) ignores key validity and reliability evidence (Jaschik, 2009). While these criticisms are important to note, the reality is that the NSSE is the only psychometrically examined instrument available that measures levels of student engagement. The Law School Survey of Student Engagement (LSSSE), from which the Master's Survey of Student Engagement (MSSE) survey instrument was adapted for use in this study, has not undergone rigorous reliability and validity studies.

The Law School Survey on Student Engagement (LSSSE)

The Law School Survey on Student Engagement is a national engagement instrument that is intended to measure graduate engagement. The LSSSE was created by the Center for Postsecondary Research at Indiana University to provide law schools with a way to collect information annually about the law school experience. The LSSSE was specifically designed to assess the extent to which law students are engaged in effective educational practices (LSSSE, 2010). The LSSSE asks students about their law school experience - how they spend their time, what they feel they have gained from their classes, how they perceive the quality of interactions with faculty and friends and other activities. Extensive research indicates that good educational

practices in the classroom and interactions with others, such as faculty and peers, are related to student outcomes. In particular, the LSSSE (2011) assesses key areas of students' engagement:

- The nature and frequency of their interaction with professors
- How much time they spend reading and preparing for class
- Participation in co-curricular and pro bono experiences
- Collaboration and interactions with fellow students
- Perceptions of the law school environment
- What they feel they have gained from their experience (p.1)

This kind of information describes law school quality and law student engagement, though it does not say much about what is most important to student learning - whether an institution's programs and practices are having the desired effect on students' activities, experiences, and outcomes. According to LSSSE, the data helps faculty and administrators better understand their students, help set goals and benchmarks, and identify areas for programmatic and curricular improvement. Since 2004, 164 different law schools have administered the LSSSE survey at least once, for the purpose of assessing the level of student engagement, improving educational practices, and enhancing student success (LSSE, 2010). In 2010, nearly 25,000 law students from 77 law schools participated in the LSSSE.

The LSSSE currently uses data from item-level responses to compare first year, second year, and third year students' levels of engagement. The LSSSE also provides participating institutions with comparison data from other law schools on these same item-level responses. LSSSE institutional data highlight where an institution is doing well and where they need to improve (LSSSE, 2010). As was the case for the National Survey of Student Engagement, the

LSSSE does not identify a set of benchmarks or engagement dimensions for law students. It may be that the LSSSE has not undertaken an examination of the internal structure of the instrument or that such analyses did not suggest the presence of dimensions of engagement for law students so its developers focused on item-level information and comparison.

The NSSE and LSSSE have never been claimed as direct, or objective, measures of student engagement, but the instruments offer a starting place for the assessment of engagement behaviors in master's students. Given the constraints of time and money, it makes sense for this research study to start with an instrument that can provide indirect, self-reported data on engagement among master's students. The validity of the inferences drawn from such an instrument is another focus of this study.

Conclusion

This literature review underscores the need for research on the master's student experience and in particular master's student engagement. Master's education is growing, both in terms of the number of students enrolled and in the types of programs offered. Research on the master's student experience has not kept pace with this growth. In fact, the paucity of research is a gap in the otherwise robust literature in higher education. Student engagement is currently a mostly undergraduate student concept. Extending the research to graduate students will give practitioners data to help understand the student experience and also improve the programs and services offered to support master's students. It will also contribute to the engagement field by investigating what the dimensions of engagement are for master's students.

Chapter Three: Methodology

Introduction and Overview

The research questions that guided this study sought to describe how master's students engage in educationally effective practices. As previously discussed in both the introduction to the study and the review of literature, although the concept of student engagement is prominent in undergraduate education, research that considers student engagement within master's education is severely limited. This study was designed to fill that gap, contributing both to the engagement literature and to the general body of research on graduate education. The associational research design used in this study explored the relationship between student engagement and the personal and academic characteristics of master's students. The primary instrument in this study is referred to as the Master's Survey of Student Engagement (MSSE). The study used the five National Survey of Student Engagement (NSSE) engagement dimensions (called benchmarks) as a preliminary framework for understanding the internal structure of the MSSE. This research was approved by an Institutional Review Board.

As previously discussed in the literature review, the National Survey of Student Engagement (NSSE) benchmarks were developed based on engagement and involvement theories that link student engagement to key collegiate outcomes including student learning and development (NSSE, 2008; Kuh, 2009a; Pascarella et al., 2008). In particular Chickering and Gamson (1987) developed a set of educationally effective practices in which the NSSE is grounded. The NSSE engagement dimensions are: (a) Level of Academic Challenge, (b) Active and Collaborative Learning, (c) Student-Faculty Interaction, (d) Enriching Educational Experiences, and (e) Supportive Campus Environment.

This chapter presents the methodology for this research study and describes its overall research design including: settings, population, and sample; instrumentation; variables; analytic approach; and administration.

Research Design

Quantitative Research

This quantitative study sought to understand student engagement in a previously unexplored segment of higher education and utilized an adapted national survey to gather data on the engagement patterns of master's students. Quantitative studies enable researchers to generalize from a sample to a population in order to make inferences about a particular behavior, attitude, or characteristic, or the relationships among such variables (Babbie, 1990). Creswell (2003) identifies five key criteria of a quantitative study: (a) numeric data are used to describe attributes of a sample; (b) a relationship between an independent and dependent variable in a population is examined; (c) research questions or hypotheses involve a variable or variables; (d) there are standards of instrument reliability and the validity of findings; and (e) theories are tested. The current study met the above criteria as, for example, numerical data was used to quantify dimensions of student engagement, the research tested engagement theory within a master's student population, and the study aimed to examine the relationship between engagement and master's students' personal and academic characteristics. Given the paucity of research on master's student engagement, data from a quantitative study can provide broad descriptions of engagement from which future research – both quantitative and qualitative – can follow.

Research Setting, Population, and Sample

This study focused on the engagement patterns of master's students at a mid-sized national, religiously affiliated, Carnegie classification Doctoral/Research – extensive institution located in the Northeast (Carnegie, 2012). For the 2011-2012 academic year, the total student enrollment across all degree types was 13,826. Undergraduate student enrollment was 9,008 and graduate student enrollment was 4,818. Of the graduate student enrollment, 1,007 were enrolled in doctoral degree programs, 3,618 were enrolled in master's or professional degree programs, 40 were enrolled in licensure programs, 135 were enrolled in non-degree programs and 18 were enrolled in some other type of program.[1] The institution's graduate schools (with their corresponding graduate enrollment) include graduate arts and sciences (864), business (839), education (1,003), law (791), nursing (315), social work (514), theology and ministry (342), and advancing studies (150).

The target population for this study was the broader population of master's students in the United States, but the accessible population was limited to students at the institution where the research was conducted. The study's purposive sample comprised master's students enrolled in a master's program in business, education, or arts and sciences. A 2010 Council of Graduate Schools study of the number of master's degrees awarded determined that education (26.5%), business (24.4%), and arts and sciences (12.9%) have the highest percentage of master's degree recipients (Bell, 2011). At the institution where this study was conducted, the total population of students enrolled in these programs is 1,677. Of these, 800 were enrolled in master's programs in

[1] The category doctorate includes Ed.D., Ph.D., D.S.W., and S.T.D. degrees; Master's/Professional includes M.A., M.A.T., M.B.A., M.Div., M.Ed., LL.M., M.S., M.S.T., M.S.W., M.T.S., Th.M., and J.D. degrees; Other includes C.A.E.S. and C.A.G.S. degrees; Licentiate includes Licentiate in Sacred Theology (S.T.L.); Non-degree includes non-degree and special students.

business, 654 were enrolled in master's programs in education, and 223 were enrolled in master's programs in arts and sciences. While these numbers reflect the total number of students as reported by the institution, the sampling frame provided by the Office of Institutional Research included 1,539 master's students, of which 205 were in arts and sciences, 769 were in business, and 565 were in education. There are two plausible explanations for the difference in the total population and sampling frame. The institutional Fact Book pulls student data on the fall census date and the data for this study was pulled from the spring census date. Since the numbers are pulled on different dates, the totals are different. Also contributing to differences is the nature of the institution's student information system. A student can only be registered in one school at a time, so if a student is a dual MBA/MSW student (for example), they often move back and forth between schools as they progress through their program/coursework. Any dual degree students in the sample may have been listed in another school in the fall semester.

Descriptive Characteristics of Respondents

The participant characteristics of greatest interest in this study were academic discipline (arts and science, business, and education), gender, enrollment status, marital status, children status, and international student status. Chi-square goodness-of-fit statistics were calculated to check the representativeness of the final sample with the accessible population—in terms of some of these academic and personal characteristics on which there is institutional data.

The final sample included 496 participants, of which 70 were in arts and science, 209 were in business, and 217 were in education. A chi-square goodness-of-fit test using an alpha level ($\propto$) of .05 indicated that the distribution of the sample, in terms of their school, was significantly different than the accessible population, $\chi^2(df=2) = 12.75$, $p < .05$, with business students under-represented in the sample and education students over-represented. The

proportions of students in arts and sciences in the sample and in the accessible population were similar. The study is therefore limited in terms of external validity because the representation is not ideal for business and education students.

In contrast the gender breakdown of the sample, 55.8% women and 43.4% men, matches the expectations set up by the accessible population and sampling frame. A chi-square test, $\chi^2(df=1) = 3.52$, *NS*, indicated that the sample is not statistically different than the accessible population with respect to gender.

While the sample is nearly evenly distributed between full time students and part time students (49% and 51% respectively), the chi-square test shows that the sample diverges statistically from the accessible population which had a greater proportion of full time students $\chi^2(df=1) = 48.5$, $p<.05$. The study is therefore again somewhat limited in its ability to generalize to the accessible population.

72% of respondents were single (never married), separated, or divorced while 28% indicated they were married or partnered. This differs somewhat from the wider master's population, where 58% of students reported their status as unmarried and 42% reported their status as married. Nine percent of respondents reported that they had children, which differs from the general graduate student population of 26.4% reporting that they had children. 41 of the 45 respondents (about 91%) who indicated that they had children were married or partnered.

The average age of the respondents in the sample was 28.5. While there is a wide range in the age for the respondents, from 22 years of age to 62 years of age, most respondents (416 of 493 or about 84%) were in the 23-32 age range. This is consistent with the age range of the general master's student population.

Research questions

The primary research questions that this study investigated were:

1. What is the internal structure of the MSSE instrument as it relates to the five NSSE benchmarks of student engagement, and how do its scores relate to relevant educational outcomes?
2. How are the five dimensions of engagement related to the characteristics of academic discipline, enrollment status, gender, age, marital status, international student status, and children status?

Instrumentation

The survey instrument used in this study is an adapted version of the Law School Survey of Student Engagement (LSSSE), which is the first instrument to adapt the National Survey of Student Engagement (NSSE) for use with graduate students. Developers of the LSSSE modified the NSSE to fit a law school context and, for this study, the researcher modified the LSSSE instrument to fit a master's education context. In this study the adapted instrument is referred to as the Master's Survey of Student Engagement (MSSE). Because the NSSE, LSSSE, and MSSE are very similar, this study used the five NSSE engagement benchmarks as a conceptual framework for the MSSE instrument's content. Permission to adapt the items on the LSSSE was granted by the Center for Postsecondary Research at Indiana University that oversees the LSSSE.

Another study adapted the LSSSE and used the NSSE national benchmark categories as a framework for what is measured by the adapted instrument. In a study on student engagement in theological education, Fuller (2009) used a modified version of the LSSSE instrument to create the Theological School Survey of Student Engagement (TSSSE). The TSSSE study then used the five NSSE engagement benchmarks to explore the engagement levels of theological students.

The TSSSE closely replicated the content and organization of the LSSSE. Some modifications made for the TSSSE content included eliminating references to law-school specific activities and replacing them with theology-school related items. In addition, Fuller (2009) assessed an additional element, spiritual formation, as it is a distinct objective of theological education.

The National Survey of Student Engagement (NSSE) was designed to measure the extent to which college students are engaged in empirically tested effective practices in undergraduate education. Chickering and Gamson (1987) argue that effective practices include contact between students and faculty, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning. The NSSE instrument consists of 102 likert-scale items and asks students to report on activities indicating these effective educational practices. These include course activities, higher-order thinking skills, cooperation with other students, and interactions with faculty and students from different backgrounds (NSSE, 2011). The NSSE has several different types of items and response scales. One set of items asks students the frequency with which they engage in specific educational activities, and response options include "very often," "often," "sometimes," and "never." A second set of items relates to the emphasis schools give to various educational activities and services, and response options include "very much," "quite a bit," "some," and "very little." The same scales are used for students' own assessment of their educational gains in a range of learning and development outcomes. The instrument also measures satisfaction with selected campus resources and services by asking students to indicate whether they are "very satisfied," "satisfied," "unsatisfied," "very unsatisfied" (or "not used" if students did not participate in the activity). For items about students' participation in enriching educational experiences, response options include "done," "plan to do," "do not plan to do," and "undecided." The instrument also

has items that ask for student demographic and background information. Sometimes students are asked to select numeric responses. For example, particular items ask students to estimate the number of papers written during the current school year or the number of hours they spend in a typical 7-day week engaging in various activities using a 7-point Likert scale.

The NSSE is typically administered to first-year students and seniors. The primary content of the NSSE is referred to as the *College Student Report*, and includes 42 items that identify behaviors that are associated with learning and personal development outcomes in college (Kuh, 2001). The Center for Postsecondary Education, which developed the NSSE, organized the instrument around five "benchmarks" or distinct dimensions of engagement based on effective practices of higher education. Related items are grouped together under each benchmark which allows institutions to examine the general areas where they may want to improve rather than working with 42 individual items (Kuh et al., 2001). This study applied these dimensions of engagement - effectively a theory of undergraduate engagement - and examined them in a master's student context. Below are the five benchmarks and a description of each.

Level of Academic Challenge (LAC). Items within this benchmark refer to students' preparation for class, reading and writing behaviors, perceptions of work to meet faculty standards, higher order thinking skills, and an institutional environment emphasizing studying and academic work.

Active and Collaborative Learning (ACL). This benchmark highlights opportunities for students to work together, and apply their learning to multiple settings, including discussing concepts from readings with others, participating in courses that incorporate community based projects, tutoring or teaching classmates, working with others to prepare assignments outside of

class and completing projects in class, asking questions, making class presentations, and contributing to class discussions.

Student/Faculty Interaction (SFI). The items within this benchmark assess discussing ideas from coursework with faculty members outside of class; working with faculty members on projects outside coursework, such as committees or orientation; working with a faculty member on a research project; and getting prompt feedback on academic performance.

Enriching Educational Experiences (EEE). This benchmark represents offering students a variety of learning opportunities that complement the academic mission of their program including diversity initiatives, technology, internships, and capstone experiences. Items regard talking with students from differing religious or political backgrounds; talking with students of a different race or ethnicity; an institutional climate that encourages contact between students of varying economic, social, racial, or ethnic backgrounds; using technology for assignments; and participating in unique educational opportunities such as foreign language coursework, study abroad, community service, internships, independent study or self-designed major.

Supportive Campus Environment (SCE). This benchmark refers to how institutions help students succeed academically; help students cope with non-academic responsibilities; help students adjust socially; and promote supportive relationships among members of the campus community including faculty, students, peers, and administrators.

Ordinarily, NSSE benchmark scores are calculated by converting the score for each item contributing to a benchmark to a 0-100 point interval scale and then summing items within a particular benchmark. For items that ask whether a student participated in an activity, students who indicate that they have not completed an activity receive a score of 0, and students

indicating they have already completed an activity receive a score of 100. For items that ask how often a student participates in an activity, responses are assigned a predefined number of points between 0-100. For example, "never," "sometimes," "often" and "very often" are recorded as 0, 33.3, 66.6 and 100 respectively. Institutional scores on each of the benchmarks are derived from student level scores for each class year (first-year students and seniors) (NSSE, 2010).

The LSSSE, like the NSSE, asks students to indicate how frequently they engage in a range of activities representing good educational practice. The survey has 104 items. The items gather data on activities related to classwork, cooperation with peers, work with faculty, interactions with others of differing backgrounds and perspectives, and participation in enriching educational experiences such as pro-bono work or involvement in campus organizations (LSSSE, 2011). Students are also asked to report their perceptions of features within their law school that are associated with achievement, satisfaction, and persistence. Lastly, students are asked to respond to demographic questions that enable institutions and researchers to disaggregate the respondents in various ways (Kuh, 2007).

Compared to the NSSE, there is relatively less information about the LSSSE in terms of its internal structure and psychometric properties within the law student population. Thus, the present study applied the five NSSE benchmarks and conducted a factor analysis to explore which, if any, dimensions of engagement underlie the MSSE data collected from master's students – one large subset of the graduate student population. It seemed reasonable to use the five engagement benchmarks as a starting point for this research as it appears that many of the items on the LSSSE (and the adapted MSSE) conform quite explicitly to the NSSE framework.

Reliability and Validity of the NSSE and LSSSE

The following section describes the existing validity and reliability evidence pertaining to the NSSE and LSSSE. There is a wealth of information about the psychometric properties of the NSSE. A report entitled *Psychometric Profile* outlines validity studies, reliability, and other information as to the NSSE's quality (NSSE, 2012). Each section in the report includes the purpose of the analysis and research question(s), a description of the data and methods, and the results of the psychometric analyses. The developers of the NSSE contend that the psychometric properties of the NSSE indicate that the instrument measures what it intends to measure (i.e., instrument validity).

Instrument reliability refers to the extent to which the instrument yields consistent scores (Light et al., 1990). Reliability analyses (including internal consistency and test-retest) of the NSSE imply reliability across institutions and individuals (NSSE, 2010a). The *Psychometric Profile* contains information on internal consistency reliability of the NSSE (NSSE, 2012). Table 1 shows the reliability estimates for both first-year undergraduate students and senior students.

Table 1

NSSE Reliability Estimates for First-Year and Senior Undergraduate Students

NSSE Benchmarks	First-Year Cronbach's α	Senior Cronbach's α
Level of Academic Challenge	0.73	0.77
Active and Collaborative Learning	0.67	0.67
Student-Faculty Interaction	0.71	0.74
Enriching Educational Experiences	0.60	0.66
Supportive Campus Environment	0.79	0.80

Note. NSSE = National Survey of Student Engagement.

The benchmarks generally appear to be reliable for first year students and senior students. Two of the benchmarks, Active and Collaborative Learning and Enriching Educational Experiences, have lower reliability estimates.

Validity refers to how well an instrument measures what it intends to measure (Creswell, 2003). The NSSE relies on self-reported data, and the validity of self-reported data has been examined extensively (Pike, 1995). Self-reported data are generally expected to be valid under five conditions: (a) the information requested is known to respondents; (b) the questions are clear and unambiguous; (c) the questions refer to recent activities; (d) the respondents think the questions merit thoughtful response; and (e) answering the questions does not threaten, embarrass, or violate the privacy of respondents or encourage respondents to answer in socially desirable ways (Kuh, 2003; NSSE, 2010; Pace, 1985; Pike, 1995). The NSSE's developers report adhering to the "benchmark" framework during item development and paying careful attention to

how the items were worded and structured to ensure content validity (Kuh, 2003; NSSE, 2010). Research suggests that the NSSE works equally well for students at different types of institutions and students from different racial and ethnic backgrounds (Kuh et al., 2007b). Both individual items and the overall instrument have been modified to enhance reliability and validity over the years based on data collected from focus groups, cognitive testing, and various psychometric analyses (Kuh, 2009b). Other findings provide evidence for the predictive validity of the instrument. The NSSE predicts first-year persistence and cumulative credits taken. Smaller, but still significant effects were found for grade point average.

However, Porter (2009) argued that the NSSE did not meet reliability and validity standards, challenging the extent to which engagement items show content validity and cluster around five distinct engagement domains. Campbell and Cabrera (2009) tested Porter's (2009) assertions and found that at a single institution the five-benchmark model does not hold up. Of particular note was a .86 correlation between two of the benchmarks - Active and Collaborative Learning and Student-Faculty Interaction. The same study also found the benchmark Enriching Educational Experiences to be the least internally consistent. Campbell and Cabrera acknowledge that their results for a single institution are not as strong as multi-institutional studies, yet they recommend that institutions examine the extent to which the five NSSE benchmarks are reliable and valid for their own institution before making changes in programs or policy on their basis. Similarly, this research first sought evidence that the Master's Survey of Student Engagement measures engagement dimensions, and does so reliably, before conducting further analyses.

Considerably less information is available on the psychometric properties of the LSSSE. Some relates to the content and face validity of the instrument. According to LSSSE (2011):

> The LSSSE design team that developed the instrument worked very hard to make certain the items on the survey were clearly worded, well-defined, and had high face and content validity. Logical relationships exist between the items in ways that are consistent with the results of objective measures and with other research. The responses to the survey items are approximately normally distributed and the patterns of responses to different clusters of items discriminate among students both within and across institutions (p. 1).

Empirical results from the 2011 LSSSE administration also provide validity evidence. First year law students spent more time studying, preparing for class, and writing papers than third year law students. This is to be expected, as theoretically the rigor of the first year demands that these students engage in those practices at higher levels. Likewise, third year students score higher on analysis and synthesis of material, likely because they have had more practice in doing so through their courses (LSSSE, 2011).

The Masters Survey of Student Engagement (MSSE)

The MSSE instrument used in this study consisted of 98 items. The MSSE items were nearly identical to corresponding items on both the LSSSE and NSSE, as was the organization of the items within the instrument. Where MSSE items were changed, it was primarily to reflect a master's program context or to eliminate items that could not be adapted to a master's student context. Below are three examples of questions adapted from the LSSSE for use in the MSSE, with LSSSE language in the first bracket and MSSE language in the second bracket:

- To what extent does your [law school] [master's program] emphasize each of the following?
- To what extent has your experience [at your law school] [in your master's program] contributed to your knowledge, skills, and personal development in the following areas?

    - Developing [legal research] [research] skills
- During the current school year, about how many hours do you spend in a typical 7-day week doing each of the following?
    - [Legal pro bono] [professionally-related volunteer] work not required for a class or clinical course
    - Working for pay in a [law related] job [related to your discipline]

Examples of items from the LSSSE that were not used on the MSSE instrument included a question that referenced participation as a law journal member and a question that asked students to report on their expected area of law specialization. Two additional questions regarding marital status and dependent children were added for the MSSE because they were theoretically important variables on which neither the NSSE nor the LSSSE collected data.

Appendix B shows the grouping of the items on the MSSE by their corresponding NSSE benchmark category: Level of Academic Challenge (11 items); Active and Collaborative learning (4 items); Student-Faculty Interaction (6 items); Enriching Educational Experiences (8 items); and Supportive Campus Environment (7 items).

Given both the lack of sound psychometric information on the LSSSE (i.e., reliability and validity information) and the emerging consequential use of the NSSE benchmarks in graduate education (e.g., institutional programmatic and policy changes), this study explored the quality of the MSSE, a very similar instrument used with master's students. To this end, the study conducted a factor analysis on the items in the MSSE that pertain to the five benchmarks. This analysis intended both to examine the internal structure of the MSSE, and to shed light on the nature of engagement in a master's student context. After the factor analysis was conducted a separate reliability analysis for each set of items that measure a particular factor/dimension was

conducted. These analyses are discussed in further detail in the analytic approach section of this chapter.

Benchmark Item Change

As I prepared the data set for the factor analysis, one item stood out as potentially problematic for the analysis, and I chose to replace the item with another item that I deemed more appropriate. Specifically, question 35 was replaced with question 18 under the student-faculty interaction benchmark category. Question 18 asks students to report if they have worked with faculty members on activities other than coursework, while question 35 asks students to report whether they have either "done" or "plan to do" work with faculty members outside of program requirements. The rationale for replacing question 35 with question 18 is threefold. First, since a large share of respondents indicated "undecided", which is not a meaningful response, too many individuals would have to be given the mean on the variable for the factor analysis. Second, the questions contain the same words and share a similar meaning, but question 18 asks about actual behaviors, not about intent as question 35 asks. Third, these two items correlated positively at .49 when the response option "undecided" was set missing.

Variables

The second research question treated the personal characteristics of age, gender, children status, and marital status and the academic characteristics disciplinary field, enrollment status, and international student status as independent variables, and the engagement dimensions as dependent variables. As indicated earlier in the problem statement, one of the challenges to conducting an engagement study with master's students was the sheer diversity within the population of master's students. The variables selected for this study represented an initial attempt at understanding which of these related to levels of engagement.

For example, this study sought to explore how the engagement patterns of international students differed from American students. Two themes explored extensively in the literature on international students are issues of adjustment and institutional support (Foot, 2009). Given the increasing numbers of international students, particularly in the field of business, exploring the engagement patterns of these students could provide data for faculty and administrators to address issues of acculturation and adjustment. Research shows that undergraduate international students are more engaged in educationally purposeful activities than American students (Zhao, Kuh, & Carini, 2005). Zhao et al. (2005) posited that faculty members and administrators need more information about what international students do in college in order to know whether and where to intervene to improve their experience.

Full-time students and part-time students also have different experiences. Understanding the engagement patterns for each group can help practitioners target campus opportunities. Results from the 2011 LSSSE administration found some expected differences between part-time and full-time students. Part-time students devoted less time to co-curricular activities (e.g., journal, moot court, and law school organizations), but they spent the same amount of time studying and preparing for class as full-time students (NSSE, 2011). Results also showed that part-time students were less likely to participate in collaborative and interactive activities than full-time students. Master's students might show a similar pattern.

Variable Re-coding

Some variables were re-coded for the final analyses. First, the variable marital status was re-coded to have two categories instead of the five response categories on the instrument. Married and partnered became one category as partnered is analogous to married. Single (never married), separated, or divorced was treated as a second category. The number of respondents

who indicated separated or divorced (n = 3) was too small to enable comparison with the other categories. There were no respondents in the widowed category. It was deemed appropriate to collapse the five categories into these two categories because theoretically individuals who are and are not in an intimate relationship generally should differ in the amount of time available for engagement.

For race and ethnicity, nine respondents indicated "other" in their responses and then specified via an open-ended text box what their race or ethnicity was. Of those, two respondent answers were re-coded to be included in the pre-specified response categories. Specifically, the response Caucasian was re-coded to White (not Hispanic) and the response Black and White was re-coded to Multiracial. The seven remaining "other" responses were not re-coded as the category into which they might be placed was not apparent. Finally, for interpretation purposes the year of birth variable was re-coded into a new variable, age, by subtracting the year of birth from 2012.

Analytic Approach

In this study there were two primary research questions and a number of corresponding secondary research questions. Each research question is stated below along with a description of the corresponding method of analysis.

Data Cleaning

Before any data analyses were conducted, I cleaned the data set in preparation for analysis. Given the study's research questions, the sample was restricted in several ways in order to select the final sample on which the analyses would be based. First, I removed five respondents who indicated that they were part of a 5th year program wherein they started their program as an undergraduate student. The Office of Institutional Research had attempted to

remove all 5th year students from the sampling frame, nevertheless these five individuals somehow responded to the survey.

Second, I removed 6 respondents who indicated that they were in a joint program in two different schools. For instance, if a student was in a joint program in education and business, they were removed. However, if a student indicated that they were in a joint program within the same school, for example master of finance and master of business administration (both business school degrees), they were not removed. Research question two requires that students identify with a particular school. Third, one participant was removed because they discontinued responding toward the beginning of the survey. Fourth, another respondent was removed because the pattern of responses for this individual was suspicious (i.e. selecting the fourth and highest category for all items).

In order to describe the sample as well as inspect the data for factor analysis, analyses began by calculating descriptive statistics for all variables, including all individual MSSE items. This allowed for examination of the extent of missing data. For categorical variables, counts and valid percentages were computed. For continuous variables, I examined measures of central tendency and dispersion, as well as skew and kurtosis. Sample sizes for groups were inspected, and the engagement items were examined to check that there is variability (e.g., no ceiling or floor effects).

The research questions investigated were:

1. What is the internal structure of the MSSE instrument as it relates to the five NSSE benchmarks of student engagement, and how do its scores relate to relevant educational outcomes?

a. What is the internal structure of the MSSE instrument as it relates to the five NSSE benchmarks of student engagement?

The related hypotheses for this question were:

H_0: The internal structure of the MSSE corresponds with the five NSSE benchmarks of student engagement.

$H_{1:}$ The internal structure of the MSSE does not correspond with the five NSSE benchmarks of student engagement.

b. To what extent do scores on the MSSE instrument correlate with indicators of positive outcomes of higher education and grade point average (self-report and institutionally provided)?

It was important to seek evidence of construct validity in terms of the hypothesized dimensions of engagement. An exploratory factor analysis (EFA) was conducted to examine the internal structure of the MSSE, which is one type of evidence for the construct validity of an instrument. Factor analysis helps researchers understand the latent constructs or the structure underlying a set of observed variables such as survey items. EFA was used instead of confirmatory factor analysis because this was an exploratory study and there is no apparent prior research on the existence of these five dimensions with master's students. Factor eigenvalues, percent of variance explained, and item factor loadings were used to inspect the internal structure of the MSSE. Since no information was available about the internal structure of the LSSSE or TSSSE, there was no specific hypothesis about the internal structure of the MSSE. Since the EFA discussed later implied that there are factors measured by the instrument, factor scores were extracted in SPSS.

After the factor analysis was conducted a separate reliability analysis (using Cronbach's alpha) was conducted for each set of items that measured a particular engagement factor/dimension. This helped determine the reliability of scores, or the proportion of the total variability in the scores on each dimension that come from true variability in the construct (rather than all of the other things that also influence how an individual responds to the items).

While the factor analysis focused on the internal structure of the MSSE, this study also sought another type of validity evidence: construct validity. Several items on the MSSE asked students to assess their own development on a set of positive educational outcomes including critical thinking, understanding oneself, speaking clearly and effectively, and acquiring a broad disciplinary education, among others (see Appendix A, question 10). In addition, students were asked to self-report their grade point average which is another key outcome that can be measured and linked to a measure of engagement for validation purposes. Since engagement theory predicts that engagement is associated with positive educational outcomes, if the MSSE measures engagement then MSSE engagement scores should be associated with these relevant outcomes. Thus, to examine the convergent construct validity of the MSSE, correlational analyses were used to determine whether the engagement dimensions measured by the instrument were significantly related to these relevant outcomes. Correlations of .3 or larger between an engagement scale score and an outcome item were considered as adequate evidence for the convergent construct validity of the MSSE.

2. How are the five dimensions of engagement related to the characteristics of academic discipline, gender, age, marital status, children status, international student status, and enrollment status?

a. Is there a relationship between each engagement dimension and the characteristics academic discipline, gender, age, marital status, children status, international student status and enrollment status (main effects)?

$H_0 1$: There are no statistically significant relationships between the characteristics and the dimensions of engagement.

$H_A 1$: There are some statistically significant relationships between the characteristics and the dimensions of engagement (main effects).

b. Is the interaction of gender and academic discipline related significantly to the dimensions of engagement?

$H_0 2$: The interaction of gender and academic discipline is not related statistically to the dimensions of engagement.

$H_A 2$: The interactions of gender and academic discipline is related statistically to the dimensions of engagement.

For the above question, five multiple regression analyses were conducted; each multiple regression analysis examined the relationship between a particular engagement dimension (dependent variable) and the six characteristics (independent variables). Each multiple regression analysis also included one interaction: that representing the interaction between gender and academic discipline. This potential interaction effect was tested because of theory, prior research, and personal experience. The categorical variables were dummy coded (coded 0 for absence and 1 for presence); the reference group for academic discipline was arts and sciences. The interaction terms were created in SPSS by multiplying the respective variables. Multiple regression analysis allowed me to see which characteristics were related to levels of engagement, while controlling for other characteristics.

Survey Administration

The MSSE survey was conducted online between April 17, 2012 and May 8, 2012 using Campus Labs, a web-based survey vendor with whom the host institution has a contract. The Office of Institutional Research at the host institution generated an email list of master's students enrolled in business, education, and arts and sciences. As stated earlier, the sample list provided by the Office of Institutional Research included 1,539 master's students, of which 205 were in arts and sciences, 769 were in business, and 565 were in education. All responses were confidential and no identifying information was used. Participation in the survey was voluntary.

Prior to launching the survey, the MSSE instrument was piloted at the research site with ten master's students from disciplines other than arts and sciences, business, or education (so as to not affect the potential sample). The goal of the pilot was to solicit feedback on question clarity and the length of time that it took students to complete the survey. Students reported that it took between ten and twenty minutes to complete the survey. One student reported that it was hard to differentiate between an assignment and a project. Another student would have liked, in addition to reporting on the activities that they have done or plan to do, to be able to respond that they were currently participating in an activity. Overall, students found the survey to be clear and organized. No changes were made to the instrument as a result of the pilot process.

The survey was distributed via a series of email invitations to student participants. An initial email to participants explained the purpose of the study, provided information on participants' rights as human subjects in this research, and gave instructions for how participants can access the survey. A follow-up email was sent one week after the original email to those who did not respond, and a final reminder was issued 48 hours before the close of the survey. The

associate deans for arts and sciences, business, and education each sent a letter of endorsement (written by me to ensure consistency in message) to the students in their respective school.

Incentives were used to encourage student participation in the study. Five names of those who completed the survey were randomly drawn by Campus Labs to receive one of five $50 gift certificates from giftcertificates.com. A staff member in the Office of Institutional Research notified the recipients who were selected and sent each of the recipients the gift certificate.

Summary

This chapter presents the methodology for a research study on master's student engagement. This study used an adapted version of a national instrument to measure the educationally effective practices of master's students within five dimensions of engagement and examined how they relate to personal and academic characteristics. This study was also intended to provide an understanding of the construct of engagement in master's students.

Chapter Four: Results

Introduction

This chapter presents the results of the analyses described in Chapter 3. As previously described, this study investigated engagement among master's students using an instrument called the Master's Survey of Student Engagement (MSSE). The first research question sought evidence of the construct validity of the MSSE, in particular, the extent to which it measured the five hypothesized engagement dimensions in master's students, and the extent to which its scores correlated with theoretically relevant constructs (e.g., grade point average). The second research question addressed possible relationships between the engagement dimensions and six theoretically important individual characteristics (e.g., gender). This chapter is divided into three sections: Results for research questions one and two and a summary of findings in preparation for an interpretive discussion.

Data Analysis – Research Question 1

Research question one asked about the extent to which the MSSE instrument exhibited construct validity. Specifically, the study examined the internal structure of the MSSE as it relates to the five NSSE benchmarks of student engagement. Results regarding how well the MSSE scores correlate with relevant outcome variables, such as grade point average and self-reported critical thinking skills (convergent construct validity evidence), are presented. Prior to conducting an exploratory factor analysis (EFA) to examine the internal structure of the MSSE, I first computed descriptive statistics for items that comprise the five MSSE engagement dimensions. These 36 items each align with one of the five hypothesized engagement dimensions from the NSSE. I then conducted correlation analyses, examining the correlations among the items within each benchmark and correlations among items across benchmarks. Following the correlation analyses, a reliability analysis of the items within each of the benchmarks was

conducted to estimate the reliability of the five intact sets of items. Finally, an EFA was conducted to explore the internal structure of the MSSE. To help aid the reader's interpretation of the tables in this chapter, Appendix C presents the items that were submitted to the EFA and abbreviated variable names for each.

Descriptive Statistics – MSSE Items

To examine the suitability of the items for the EFA, I computed descriptive statistics for all benchmark items (see Table 2 below). Primarily, the purpose of examining these descriptive statistics was to inspect the item response distributions and ensure that there was variability in the item responses. Descriptive statistics were also used to assess potential problems such as coding mistakes or missing data.

Table 2

Descriptive Statistics for Benchmark Items

	N	Min	Max	Mean	Std. Error of Mean	Std. Deviation	Skew	Kurtosis
Q6. EEE DIVCLASS	493	1	4	2.76	0.04	0.99	-0.23	-1.05
Q8. ACL CLASSGROUP	492	1	4	2.42	0.04	0.95	0.26	-0.85
Q9. ACL OCCGROUP	493	1	4	2.84	0.04	0.93	-0.20	-1.01
Q10. ACL INTIDEAS	489	1	4	3.00	0.04	0.83	-0.35	-0.72
Q13. SFI FACDISCUSS	491	1	4	2.67	0.04	0.83	0.24	-0.86
Q14. SFI FACPLANS	490	1	4	2.05	0.04	0.87	0.67	-0.07
Q15. SFI FACIDEAS	492	1	4	1.90	0.04	0.79	0.75	0.35
Q16. SFI FACFEED	495	1	4	2.90	0.04	0.81	-0.30	-0.50
Q17. LAC WORKHARD	496	1	4	2.63	0.04	0.90	-0.03	-0.83
Q18. SFI FACOTHER	496	1	4	1.43	0.03	0.72	1.86	3.23
Q19. SFI FACRESEARCH	492	1	4	1.38	0.03	0.74	2.07	3.71
Q20. ACL OCCIDEAS	493	1	4	2.91	0.04	0.86	-0.22	-0.88
Q21. EEE DIVRSTUD	496	1	4	2.69	0.04	0.99	-0.07	-1.11
Q22. EEE DIFFSTUD	495	1	4	2.61	0.04	0.99	0.05	-1.09
Q25. LAC ANALYZE	493	1	4	3.45	0.03	0.67	-0.94	0.23
Q26. LAC SYNTHESIZE	487	1	4	3.32	0.03	0.77	-0.86	0.01
Q27. LAC EVALUATE	493	1	4	3.10	0.04	0.87	-0.65	-0.38
Q28. LAC APPLYING	496	1	4	3.26	0.04	0.82	-0.88	0.04
Q29. LAC READMOR	485	1	5	1.74	0.03	0.71	1.16	3.10
Q30. LAC READMD	487	1	5	3.05	0.05	1.01	0.36	-0.66
Q31. LAC READSM	479	1	5	3.46	0.06	1.31	-0.20	-1.22
Q46. LAC READASSG	495	1	8	3.24	0.07	1.46	1.35	1.41
Q47. LAC PREPNOREAD	495	1	8	2.88	0.06	1.25	1.69	3.34
Q52. EEE INTERNUPD	488	1	8	4.42	0.14	3.09	0.06	-1.77
Q53. EEE COCURR	494	1	8	1.59	0.07	1.58	2.81	6.97
Q58. EEE COMMUN	493	1	5	1.43	0.03	0.65	1.94	6.00
Q59. LAC ENVSCHOL	490	1	7	1.39	0.03	0.71	3.02	14.66
Q60. SCE ENVSUPORT	494	1	4	3.14	0.04	0.83	-0.62	-0.40
Q61. EEE ENVDIVRS	488	1	4	2.61	0.04	0.90	-0.04	-0.79
Q62. SCE ENVEMPLY	488	1	4	2.27	0.05	1.05	0.30	-1.10
Q63. SCE ENVNACAD	490	1	4	2.18	0.04	0.92	0.42	-0.62
Q64. SCE ENVSOCIAL	492	1	4	1.52	0.03	0.74	1.43	1.65
Q67. EEE ENVCOMP	494	1	4	1.96	0.04	0.83	0.58	-0.21
Q68. SCE ENVSTU	494	1	4	2.77	0.05	1.04	-0.29	-1.12
Q69. SCE ENVFAC	494	1	7	5.63	0.06	1.33	-1.00	0.70
Q70. SCE ENVADM	496	1	7	5.59	0.06	1.24	-0.91	0.79

Examination of the descriptive statistics for the benchmark items revealed that all items exhibit variability, with responses to all items covering the full range of the response categories (e.g., 1 through 4 for a 4-point item). Variables were also examined for skew and kurtosis so that potentially problematic items could be identified. Bandalos and Finney (2010) suggest an absolute value of no greater than 2.0 for acceptable skew and an absolute value of no greater than 7.0 for acceptable kurtosis. Any items with skew and kurtosis values that exceed these criteria may be problematic for the EFA, as outliers can affect EFA results. Items that have similar non-normal distributions can show up as a distinct factor in EFA (Bandalos & Finney, 2010). Using these criteria, I flagged three items: 1) item 19 with a skew of 2.0; 2) item 52 with a skew of 2.8 and a kurtosis of 7; and 3) item 58 which was most problematic with a skew of 3.0 and a kurtosis of 14.7. Item 53 was also borderline acceptable in terms of its skew and kurtosis (as well as its correlations with the other items, which is discussed later). These items were noted and kept in mind as the analysis proceeded and is addressed later in this chapter.

Following this descriptive statistical analysis, I visually inspected the response distribution of the items by creating histograms for all benchmark items. Overall, most item response distributions were acceptable in terms of their shapes (i.e. normally distributed), although some skew and kurtosis were evident in the histograms (visually confirming the descriptive statistics). For example question 19, which asked the extent to which students worked with faculty on a research project, was visibly positively skewed, with most responses on the low end of the scale.

Across all of the items, the amount of missing data was negligible, with responses to the benchmark items ranging from 482-496 (out of 496) participants. The most any item was missing was 2.2%, and 21 of the 36 items had a missing percentage of 1% or below. Because of

these small rates of missing data, I decided to use mean substitution to handle missing data for the factor analysis. This was done to allow for a larger sample size for the second research question. I also standardized the item response scores in SPSS for the items so they would be on the same scale (i.e., mean=0 and standard deviation=1).

Correlation Analyses

Correlation analysis was used to determine the strength and direction of the relationships among the items within each of the hypothesized benchmark categories and between items in the different benchmark categories. Their relationships were examined using Pearson product-moment correlation coefficients. For the purposes of this study, a correlation between .10 and .29 in absolute value is considered weak; a correlation between .30 and .49 in absolute value is considered moderate; and a correlation between .50 and 1 in absolute value is considered strong (Pallant, 2007).

The engagement dimensions are: a) active and collaborative learning (ACL); b) level of academic challenge (LAC); c) student-faculty interaction (SFI); d) enriching educational experiences (EEE); and e) supportive campus environment (SCE).

Table 3 below presents the correlations among the active and collaborative learning (ACL) benchmark items.

Table 3

Correlations among Active and Collaborative Learning (ACL) Items

		1	2	3	4
1	Q8 CLASSGRP	1	.20**	.09*	.04
2	Q9 OCCGRP		1	.15**	-.01
3	Q10 INTIDEAS			1	.28**
4	Q20 OCCIDEAS				1

Note. The Ns for the correlations in this benchmark ranged from 485 to 493. *p<.05. **p<.01. ***p<.001.

Within the ACL benchmark, the weakest correlation was -.01 and the strongest correlation was .28, with a mean and median correlation of .12. Overall, the items in this category do not correlate particularly well with each other. Two of the six correlations are not statistically different than zero. Three of the items in this category (8, 9, and 10) show weak positive correlations with one another, although these three items are not generally related to the fourth item (with the exception item 10). In inspecting the items substantively, the items in this benchmark ask students about their inclination to work together and share ideas while at the same time one item asks students to report the extent to which they integrate ideas independently. These seem to be measuring different behaviors. Items 8 and 9, which ask if students work with one another during class and outside of class, show a weak correlation with each other. Item 10 asks students to report the extent to which they synthesize concepts from different courses, while item 20 asks students to report the extent to which they discussed ideas from their readings or class with other students or family members.

Table 4 below presents the correlations among the Level of Academic Challenge (LAC) benchmark items.

Table 4

Correlations among Level of Academic Challenge (LAC) Items

		1	2	3	4	5	6	7	8	9	10	11
1	Q17 WORKHARD	1	.22**	.20**	.24**	.18**	.21**	.06	-.01	.32**	.32**	.39**
2	Q25 ANALYZE		1	.40**	.42**	.29**	.07	.07	.04	.16**	.09	.26**
3	Q26 SYNTHESIZE			1	.46***	.46**	.11*	.09*	.06	.16**	.08	.23**
4	Q27 EVALUATE				1	.39**	.13**	.03	.06	.15**	.09*	.24**
5	Q28 APPLYING					1	.10*	.02	.12**	.03	.07	.13**
6	Q29 WRITEMOR						1	.22**	.00	.31**	.27**	.17**
7	Q30 WRITEMED							1	.17**	.16**	.21**	.09*
8	Q31 WRITESM								1	.10*	.17**	.04
9	Q46 READASSG									1	.61**	.39**
10	Q47 PREPNOREAD										1	.30**
11	Q59 PROGEMPHSTUDY											1

Note. The Ns for the correlations in this benchmark ranged from 472 to 495. *p<.05. **p<.01. ***p<.001.

Within the LAC benchmark, the minimum correlation is -.01 and the maximum correlation is .61, with a mean correlation of .19, and a median correlation of .16. The items in this engagement dimension show some correlations with one another. However, twelve of the 55 correlations are not statistically different than zero. With some exception, items 30 and 31, which ask students to report on how many papers they wrote (between 5 and 19, or fewer than 5) are rarely correlated with the other items. The four items that asked respondents to report on how much their coursework emphasized analyzing, synthesizing, applying theories or evaluating concepts show small positive correlations with one another but show only smaller correlations with the rest of the items in the benchmark category. In addition, the items that ask respondents about their opinions of their master's program or specific courses were more highly correlated with one another than with the other items. The strongest correlations were among items that asked about preparing for class, either reading or doing homework. One might have expected that the items that specifically asked about preparing for class would be more highly correlated with the items asking about the amount of writing, but they are not.

Table 5 below presents the correlations among the Student-Faculty Interaction (SFI) benchmark items.

Table 5

Correlations among Student Faculty Interaction (SFI) Items

		1	2	3	4	5	6
1	Q13 FACDISCUSS	1	.42**	.48**	.33**	.22**	.16**
2	Q14 FACPLANS		1	.49**	.24**	.41**	.27**
3	Q15 FACIDEAS			1	.24**	.33**	.23**
4	Q16 FACFEED				1	.14**	.04
5	Q18 FACOTHER					1	.46**
6	Q19 FACRSRCH						1

Note. The Ns for the correlations in this benchmark ranged from 486 to 496. *p<.05. **p<.01. ***p<.001.

The student-faculty interaction (SFI) benchmark shows promise as a possible engagement dimension for master's students when the correlations are examined. Within the SFI benchmark, the minimum correlation is .04 and the maximum correlation is .50, with a mean and median correlation of .30. For the SFI items, only one of the 6 items (item 16) was not significantly correlated with the rest of the items. Item 16 asked students to report on the extent to which faculty provided prompt feedback on academic work. Otherwise, the items in this benchmark show moderate correlations with one another, which suggests that SFI might be a dimension of engagement for master's students.

Table 6 below presents the correlations among the Enriching Educational Experiences (EEE) benchmark items.

Table 6

Correlations among Enriching Educational Experiences (EEE) Items

		1	2	3	4	5	6	7	8
1	Q6 DIVCLASS	1	.26**	.30**	.19**	.08	.14**	.28**	.73
2	Q21 DIVERSTUD		1	.65**	.10*	.13**	.07	.35**	.22**
3	Q22 DIFFSTUD			1	.08	.16**	.14**	.29**	.15**
4	Q52 INTERNUPD				1	-.05	.02	.15**	.02
5	Q53 COCURR					1	-13**	-.00	.08
6	Q58 COMMUN						1	.00	.04
7	Q61 ENVDIVRS							1	.27**
8	Q67 ENVCOMP								1

Note. The Ns for the correlations in this benchmark ranged from 485 to 495. *p<.05. **p<.01. ***p<.001.

On the whole, the items in the enriching educational experiences (EEE) benchmark category are not well correlated with one another. Within the EEE benchmark, the minimum correlation is -.05 and the maximum correlation is .65, with a mean correlation of .16 and a median correlation of .14. Eight of the 28 correlations were not statistically different than zero. There are, however, some positive and sizeable correlations among the rest of the items. The correlation between

items 21 and 22 is large (.65); these items ask students the extent to which they had conversations with students of different races or belief systems. Most of the other correlations within this dimension are only small. The items that ask students to report on their actions, either at work, in school activities, or in the community, show a very small positive correlation with each other. While it is not yet clear that these items are measuring an engagement category for master's students, it appears that a relationship between items pertaining to issues of diversity and difference exists and may reflect some kind of engagement dimension for master's students.

Table 7 below presents the correlations among the Supportive Campus Environment (SCE) benchmark items.

Table 7

Correlations among Supportive Campus Environment (SCE) Items

		1	2	3	4	5	6	7
1	Q60 ENVSUPRT	1	.39**	.41**	.41**	.28**	.51**	.26**
2	Q62 ENVEMPLOY		1	.47**	.39**	.22**	.33**	.18**
3	Q63 ENVNACAD			1	.42**	.16**	.31**	.12*
4	Q64 ENVSOCIAL				1	.28**	.33**	.19**
5	Q68 ENVSTU					1	.39**	.24**
6	Q69 ENVFAC						1	.40**
7	Q70 ENVADM							1

Note. The Ns for the correlations in this benchmark ranged from 484 to 496. *p<.05. **p<.01. ***p<.001.

As Table 7 shows, items within the supportive campus environment (SCE) benchmark category clearly exhibit positive correlations with one another. Within the SCE benchmark, the minimum correlation is .11 and the maximum correlation is .51, with a mean correlation of .32 and a median correlation of .33. All of the items in this benchmark category were significantly correlated with each other. The four items that ask students to respond regarding how well their master's program provided support and assistance (items 60-64) were more highly correlated

with one another than with the other items. Of the three items that asked students to respond on the quality of relationships within their program, item 69, which asked students to report on their relationships with faculty in the program, was more strongly correlated with the other items than were items 68 and 70, which asked students to report on their relationships with peers and administrators. It is worth reiterating that the items all positively correlate to one another, which may indicate the presence of an engagement dimension for master's students.

In addition to looking at the correlations among the items within each benchmark, I also looked at correlations between the items from different benchmarks. While it is difficult to make sense of all the correlations across all benchmarks and items (since there are so many), one might expect that sample correlations among the items within each benchmark would be larger than the sample correlations of items across different benchmarks. Table 8 provides a summary of the correlations among the items across all benchmark categories. Logically, if the five hypothesized engagement dimensions are real and distinct, one would expect higher correlations within a benchmark than across benchmarks.

Table 8

Summary of Correlations Across Benchmarks

Benchmark pair	Min	Max	M	Median	SD
EEE-ACL	-0.07	0.37	0.11	0.10	0.11
EEE-SFI	-0.07	0.34	0.14	0.13	0.09
EEE-LAC	-0.10	0.26	0.10	0.10	0.08
EEE-SCE	-0.06	0.48	0.13	0.11	0.12
ACL-SFI	-0.07	0.33	0.12	0.13	0.12
ACL-LAC	-0.08	0.31	0.11	0.12	0.10
ACL-SCE	-0.05	0.20	0.11	0.12	0.06
SFI-LAC	-0.06	0.31	0.12	0.12	0.08
SFI-SCE	-0.02	0.35	0.14	0.12	0.09
LAC-SCE	-0.10	0.32	0.10	0.10	0.09

As Table 8 indicates, the correlations across benchmark categories are weaker than the correlations within the benchmarks, which were presented earlier. The mean correlations across

all benchmark pairs ranged from .10 to .14, and were lower than the correlations among the items within four of the five benchmark categories (which ranged from .16 to .32). The exception was the active and collaborative learning (ACL) benchmark which had a within-benchmark mean correlation of .12. From the summary data there is some indication that there may be distinct engagement dimensions for master's students, but factor analysis is needed as a more thorough analysis to determine if there are dimensions of engagement. Rather than examining each benchmark separately, factor analysis considers all of the benchmark items *at the same time* and it only considers the part of each item that has something in common with the other items. This is something that correlational analysis alone will not do.

Preliminary Reliability Analysis

Before proceeding with the factor analysis, this study investigated the reliability of the items comprising each of the hypothesized engagement benchmarks in master's students. While my research question is about the validity and internal structure of the instrument, a thorough investigation of its psychometric properties should include the examination of internal consistency as well.

Through reliability analysis I looked at the reliability of *each* benchmark set of items, and also all of the items considered together, using Cronbach's Alpha. During these reliability analyses, I also requested that SPSS compute the corrected item-total correlation for each item, which is the correlation of each item with the rest, and the reliability estimate if each item was removed from the analysis. These figures inform understanding of how much each item has in common with the others and whether the item contributes to or detracts from reliability.

The overall reliability for the active and collaborative learning (ACL) benchmark category was poor, with Cronbach's Alpha for the ACL items at .36, which is well below the

accepted reliability level of .7. Table 9 provides the corrected item-total correlations and reliability estimates for items in the ACL benchmark.

Table 9

Corrected Item-Total Correlations and Reliability Estimates for Active and Collaborative Learning (ACL) Items

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q8 CLASSGRP	.16	.33
Q9 OCCGRP	.17	.32
Q10 INTIDEAS	.28	.19
Q20 OCCIDEAS	.16	.33

As can be seen in Table 9, only one of the items had a corrected item-total correlation above the minimally accepted level of .20, and at .28 that correlation was still rather low. All other items in this benchmark category had item-total correlations below .17. Removing none of the items would have increased reliability, as may be expected with so few items in the ACL scale.

The overall Cronbach's Alpha for the level of academic challenge (LAC) items was below the accepted reliability level at .66. Table 10 provides the corrected item-total correlations and reliability estimates for items in the LAC benchmark.

Table 10

Corrected Item-Total Correlations and Reliability Estimates for Level of Academic Challenge (LAC) Items

	Correted Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q17 WORKHARD	0.36	0.63
Q25 ANALYZE	0.42	0.61
Q26 SYNTHESIZE	0.48	0.60
Q27 EVALUATE	0.47	0.60
Q28 APPLYING	0.41	0.61
Q29 WRITEMOR	0.23	0.65
Q30 WRITEMED	0.19	0.66
Q31 WRITESML	0.11	0.68
Q59 ENVSCHOL	0.36	0.62

As indicated in Table 10, all but two of the individual items (items 30 and 31) are correlated with the rest above .2. Items 30 and 31 are correlated with the rest at .19 and .11, respectively. The Cronbach's Alpha shows stability, with reliability estimates ranging from .60 to .68 when each of the items is removed. The increase in reliability that would occur with the removal of item 31 was negligible (from .66 to .68). Regardless, this item was flagged as potentially problematic for measurement.

Cronbach's Alpha for the enriching educational experiences (EEE) items was .60, which is below the accepted reliability level of .7. Table 11 provides the corrected item-total correlations and reliability estimates for items in the EEE benchmark.

Table 11

Corrected Item-Total Correlations and Reliability Estimates for Enriching Educational Experiences (EEE) Items

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q6 DIVCLASS	0.37	0.54
Q21 DIVRSTUD	0.52	0.50
Q22 DIFFSTUD	0.51	0.50
Q52 INTERNUPD	0.13	0.62
Q53 COCURR	0.12	0.62
Q58 COMMUN	0.16	0.61
Q61 ENVDIVRS	0.39	0.54
Q67 ENVCOMP	0.24	0.58

As can be seen in Table 11, five of the eight items had corrected item-total correlations of above .2. Three of the items, 52, 53, and 58, correlated between .12 and .16 with the rest of the items and are thus share less in common with the other items. This is supported by the fact that the overall Cronbach's Alpha would increase when those items are removed. These items were therefore flagged as potentially problematic in terms of measurement.

The items in the student-faculty interaction (SFI) benchmark category are considered adequately reliable. Cronbach's Alpha for the SFI items was .72 which is above the accepted reliability level of .7. Table 12 provides the corrected item-total correlations and reliability estimates for items in the SFI benchmark.

Table 12

Corrected Item-Total Correlations and Reliability Estimates for Student-Faculty Interaction (SFI) Items

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q13 FACCDISCUSS	0.49	0.67
Q14 FACPLANS	0.57	0.64
Q15 FACIDEAS	0.55	0.65
Q16 FACFEED	0.28	0.73
Q18 FACOTHER	0.48	0.67
Q19 FACRESRCH	0.30	0.71

As indicated in Table 12 above, the corrected item-total correlations range between .28 and .52. The overall reliability estimate does not change in a substantial way when any of the items are removed, however it would go up slightly with the removal of item 16 and thus this item was flagged.

Responses within the supportive campus environment (SCE) benchmark items are consistent with a Cronbach's Alpha of .76. Table 13 provides corrected item-total correlations and reliability estimates for items in the SCE benchmark.

Table 13

Corrected Item-Total Correlations and Reliability Estimates for Supportive Campus Environment (SCE) Items

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q60 ENVSUPRT	0.58	0.71
Q62 ENVEMPLY	0.51	0.73
Q63 ENVNACAD	0.48	0.74
Q64 ENVSOCIAL	0.51	0.73
Q68 ENVSTU	0.39	0.75
Q69 ENVFAC	0.58	0.71
Q70 ENVADM	0.33	0.77

As indicated in Table 13 above, individual items were related to one another, with item-total correlations ranging from .33 on the low end to .58 on the high end. Major changes to reliability would not be observed with the removal of any of the items; however, it would increase slightly with the removal of item 70. The reliability of these items could signify a possible benchmark dimension for master's students, however it could also reflect a general engagement dimension.

As the reader will recall, the NSSE, as reported in the *Psychometric Profile* also used Cronbach's Alpha to estimate the internal consistency of the benchmark items (NSSE, 2011). Table 14 compares the NSSE internal consistency estimates by benchmark for seniors at a major research institution of higher education (n=1026) with the MSSE internal consistency reliability estimates from this study with master's students.

Table 14

Comparison of NSSE (2011) Reliability Estimates with Reliability Estimates from Present Study

Benchmark Dimension	NSSE Senior Cronbach's α	MSSE Cronbach's α
Level of Academic Challenge (LAC)	.77	.66
Active and Collaborative Learning (ACL)	.67	.36
Student-Faculty Interaction (SFI)	.74	.72
Enriching Educational Experiences (EEE)	.66	.60
Supportive Campus Environment (SCE)	.80	.76

As Table 14 indicates, the MSSE internal consistency estimates differ somewhat from those of the NSSE. While the reliability estimates in the active and collaborative learning (ACL) benchmark differ quite a bit (.67 versus .36), other benchmarks show slight differences between

the NSSE and MSSE reliability estimates. Across both studies, the SFI and SCE benchmarks show acceptable internal consistency. The reliability of enriching educational experiences (EEE) benchmark is less than acceptable for both the NSSE and the MSSE. The reliability of the level of academic challenge (LAC) benchmark was acceptable for the NSSE but not the MSSE.

The overall Cronbach's Alpha for all benchmark items is .84 which is considered reliable. Table 15 contains the corrected item-total correlations and reliability estimates for all benchmark items when analyzed together.

Table 15

Corrected Item-Total Correlations and Reliability Estimates for All Benchmark Items

Item and Benchmark	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Item and Benchmark	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q6. EEE	0.34	0.84	Q29. LAC	0.18	0.84
Q8. ACL	0.17	0.84	Q30. LAC	0.22	0.84
Q9. ACL	0.12	0.84	Q31. LAC	0.14	0.84
Q10. ACL	0.39	0.85	Q46. LAC	0.29	0.85
Q13. SFI	0.43	0.84	Q47. LAC	0.31	0.84
Q14. SFI	0.42	0.84	Q52. EEE	0.05	0.85
Q15. SFI	0.38	0.83	Q53. EEE	0.20	0.84
Q16. SFI	0.37	0.84	Q58. EEE	0.13	0.84
Q17. LAC	0.41	0.84	Q59. LAC	0.36	0.84
Q18. SFI	0.32	0.84	Q60. SCE	0.53	0.83
Q19. SFI	0.19	0.84	Q61. EEE	0.42	0.84
Q20. ACL	0.44	0.84	Q62. SCE	0.37	0.84
Q21. EEE	0.46	0.83	Q63. SCE	0.34	0.84
Q22. EEE	0.45	0.84	Q64. SCE	0.39	0.84
Q25 LAC	0.38	0.84	Q67. EEE	0.31	0.84
Q26. LAC	0.44	0.84	Q68. SCE	0.28	0.84
Q27. LAC	0.41	0.84	Q69. SCE	0.42	0.84
Q28. LAC	0.46	0.83	Q70. SCE	0.32	0.84

As Table 15 indicates, items 19, 52, and 58 had the lowest corrected item-total correlations. Yet even when any of these items are removed, the overall reliability estimate remains essentially unchanged.

This section culminates with a summary of those items that I deemed potentially problematic for the factor analysis and in terms of measurement quality (e.g., contribution to reliability). For these items, the descriptive statistics, the correlation analysis, or the reliability analysis, or some combination of the three, made me question the extent to which they would contribute to the measurement of engagement, and would be appropriate for factor analysis.

Table 16

Potentially Problematic Items for Measurement and Factor Analysis

Item	Benchmark	Range of correlations with other items in the benchmark	Skew	Kurtosis	Change in Cronbach's α if item removed
Q19 FACRESRCH	SFI	.04 to .46	2.00	3.70	Decrease .01
Q52 INTERNUPD	EEE	-.05 to .19	2.80	7.00	Increase .02
Q58 COMMUN	EEE	-.13 to .14	3.00	14.70	Increase .01
Q53 COCURR	EEE	-.13 to .16	1.90	6.00	Increase .01

Note. SFI = Student-Faculty Interaction. EEE = Enriching Educational Experiences.

Question 19, which regards research with faculty, is possibly problematic for the student-faculty interaction benchmark, a benchmark that otherwise has acceptable correlations among the items and reliability. While its item-total correlation was acceptable, this item shows only small correlations with some of the other items in the benchmark, and is on the cusp of concern in terms of its skew. Questions 52 and 58, which regard an unpaid internship and participation in community organizations respectively, are likewise troubling within the enriching educational experiences benchmark as each was flagged for their small or sometimes negative correlations with the other items in the benchmark, skew, kurtosis, and relatively small corrected item-total correlations. Given the corrected item-total correlations, these two items may not contribute much to the measurement of the hypothesized enriching educational experiences engagement dimension. I also flagged question 53, which regards co-curricular activities, as potentially troubling as it shows weak correlations with the other items, borderline acceptable skew and kurtosis and a fairly small corrected item-total correlation. While these three enriching educational experiences benchmark items were flagged during the present study, the EEE benchmark dimension does exhibit some strong positive correlations among the items, specifically between the two items pertaining to serious conversations around diversity issues.

Overall, the previous review of the descriptive statistics, correlation analysis, and reliability analysis for the benchmark items helped to identify those items that might be problematic for the measurement of engagement or for exploratory factor analysis, which is presented in the next section. While these analyses flagged some items as potentially concerning, ultimately I ran the initial factor analysis on all of the items. However, the information gleaned through the previous analyses was helpful in interpreting the results of the factor analysis.

Exploratory Factor Analysis

Thirty-six items were initially submitted to the exploratory factor analysis (EFA) procedure. Prior to conducting the EFA, I evaluated the suitability of the data for EFA with respect to sample size. While there is little agreement among authors as to how large a sample needs to be for EFA, Tabachnick and Fidell (2007) recommend at least 300 cases. In this study, 36 items were analyzed through EFA with a sample size of 496, which is an adequately large sample to proceed with EFA for this exploratory study.

As described earlier in Table 8, the summary of correlations within and among benchmark items showed a number of correlation coefficients above .3 for many of the items, which is helpful in determining the suitability of the data set for EFA. The Bartlett's Test of Sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy are both generated by SPSS to help assess the appropriateness of EFA for one's data. Bartlett's Test of Sphericity should be significant ($p < .05$) for EFA to be used. The KMO index, which ranges from 0 to 1, should be above .66 which is considered the minimally acceptable level to conduct EFA (Pallant, 2007).

The KMO index for the data set is .818, indicating that the data is appropriate to proceed with EFA. Bartlett's Test of Sphericity was significant, $\chi^2(df=630) = 4325.78$, $p < .001$. As such

I will reject the null hypothesis for this test that the correlation matrix is an identity matrix (no correlations among items) and conclude that there are sufficient correlations among the items to proceed with EFA.

I also had to decide the number of factors to extract from the data for the EFA. Keiser's criterion is a common rule used to decide the number of factors to retain (Pallant, 2007). By this criterion, factors with eigenvalues above 1 are retained. An eigenvalue of greater than 1 means that the factor represents at least one item worth of variance. For this study, after initially allowing SPSS to extract factors with eigenvalues greater than 1 (Kaiser's criterion), I decided to extract only 5 factors based on the scree plot (presented later), the percent of variance explained by the factors, and importantly, the fact that I was testing whether or not there were 5 dimensions of engagement reflected in the data. I also explored and report later the results of EFAs that hypothesized different numbers of factors underlying the data (between one and 11 factors).

The results of the exploratory factor analysis for the five factor structure that will be presented employed a Promax rotation. Promax rotation is an oblique rotation which means that the factors can be correlated. This study was grounded in a theoretical framework that says the engagement dimensions will be correlated, so I used an oblique rotation to test this theory. Initially I tried to use Direct Oblimin as a method for the oblique rotation but there was a convergence issue with the data. This suggested a possible problem with the data or might have been a result of the large number of variables given the sample size. Because of this, I decided to use the Promax rotation to obtain an oblique solution, as Promax is also commonly used and works particularly well with a large number of variables and sample size because it is computationally simpler.

Until the factors are rotated, it is often difficult to interpret the factors with respect to the factor loadings. Prior to conducting the oblique rotated solution, I conducted an unrotated factor analysis in SPSS but it was not easily interpretable. The unrotated solution showed only two possible factors, and the first factor included items from all five hypothesized benchmark dimensions. It appeared that this factor represented some kind of general engagement factor, but it did not correspond to any particular benchmark. The second factor was difficult to interpret because some items loaded positively and some items loaded negatively which was unexpected. Therefore, the Promax oblique rotation was conducted to help make the factors more interpretable.

Principal axis factoring (i.e., factor analysis) was used instead of principal components analysis (PCA) because the former is more useful for examining the internal structure of an instrument. Whereas PCA reduces a set of variables to a set of uncorrelated factors, factors generated through principal axis factoring can be either correlated or uncorrelated. Tabachnick and Fidell (2007) suggest that "if you are interested in a theoretical solution uncontaminated by unique and error variability…[factor analysis] is your choice. If on the other hand you simply want an empirical summary of the data set, PCA is the better choice" (p. 635). Because prior theory says that the engagement factors are correlated and the MSSE internal structure is of theoretical interest, factor analysis is more appropriate for this study.

Table 17 below presents the initial and extracted communalities for the five factor Promax solution. An *initial* communality is the amount of variance of a particular item that is explained by the other items, and lets one know how much each item has in common with the rest of the items. MacCallum, Widaman, Zhang, and Hong (1999) suggest that .5 is considered a moderate communality, with .8 or above considered high.

Table 17

Communalities for Benchmark Items for the Five Factor Solution

	Initial	Extraction
Q6. EEE DIVCLASS	.32	.25
Q8. ACL CLASSGRP	.21	.07
Q9. ACL OCCGRP	.25	.05
Q10. ACL INTIDEAS	.31	.24
Q13 .SFI FACDISCUSS	.40	.39
Q14. SFI FACPLANS	.41	.46
Q15. SFI FACIDEAS	.43	.54
Q16. SFI FACFEED	.29	.25
Q17. LAC WORKHARD	.33	.31
Q18. SFI FACOTHER	.42	.41
Q19. SFI FACRESRCH	.26	.22
Q20. ACL OCCIDEAS	.31	.29
Q21. EEE DIVERSTUD	.54	.51
Q22. EEE DIFFSTUD	.54	.50
Q25. LAC ANALYZE	.34	.37
Q26. LAC SYNTHESIZE	.40	.43
Q27. LAC EVALUATE	.39	.46
Q28. LAC APPLYING	.38	.30
Q29. LAC WRITEMOR	.24	.20
Q30. LAC WRITEMED	.17	.12
Q31. LAC WRITESML	.14	.05
Q46. LAC READASSG	.50	.58
Q47. LAC PREPNOREAD	.47	.57
Q52. EEE INTERNUPD	.15	.08
Q53. EEE COCURR	.20	.15
Q58. EEE COMMUM	.13	.06
Q59. LAC ENVSCHOL	.31	.30
Q60. SCE ENVSUPRT	.53	.56
Q61. EEE ENVDIVRS	.44	.44
Q62. SCE ENVEMPLOY	.39	.38
Q63. SCE ENVNACAD	.38	.33
Q64. SCE ENVSOCIAL	.35	.36
Q67. EEE ENVCOMP	.19	.16
Q68. SCE ENVSTU	.25	.20
Q69. SCE ENVFAC	.46	.47
Q70. LAC ENVADM	.30	.23

Upon inspection none of the initial item communalities are high, eight items are quite low (less than .2), and most show moderate initial communality values. This means that some of the items do not share much variance in common with the other items.

The extraction column in Table 17 above represents the amount of variance in each item that is explained by the five factors that I have extracted. Extracted communalities for items 52, 53, and 58, are .075, .146, and .057 respectively, which confirms earlier suspicions that they do not contribute much to the five-factor internal structure. Items 8 and 9 and items 30 and 31 also have low extraction communalities, indicating that the five factors that were extracted are not very well accounting for those items.

Table 18 below shows the five-factor rotated Promax solution.

Table 18

Rotated Factor Solution (Promax)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	6.18	17.17	17.17	5.60	15.45	15.45	3.99
2	2.72	7.56	24.73	2.11	5.86	21.31	3.96
3	2.02	5.60	30.33	1.40	3.92	25.23	3.71
4	1.79	4.97	35.30	1.20	3.28	28.51	2.50
5	1.67	4.64	39.94	1.00	2.79	31.29	1.77
6	1.41	3.93	43.86	-	-	-	-
7	1.26	3.49	47.35	-	-	-	-
8	1.17	3.24	50.59	-	-	-	-
9	1.14	3.18	53.77	-	-	-	-
10	1.13	3.13	56.90	-	-	-	-
11	1.05	2.91	59.80	-	-	-	-

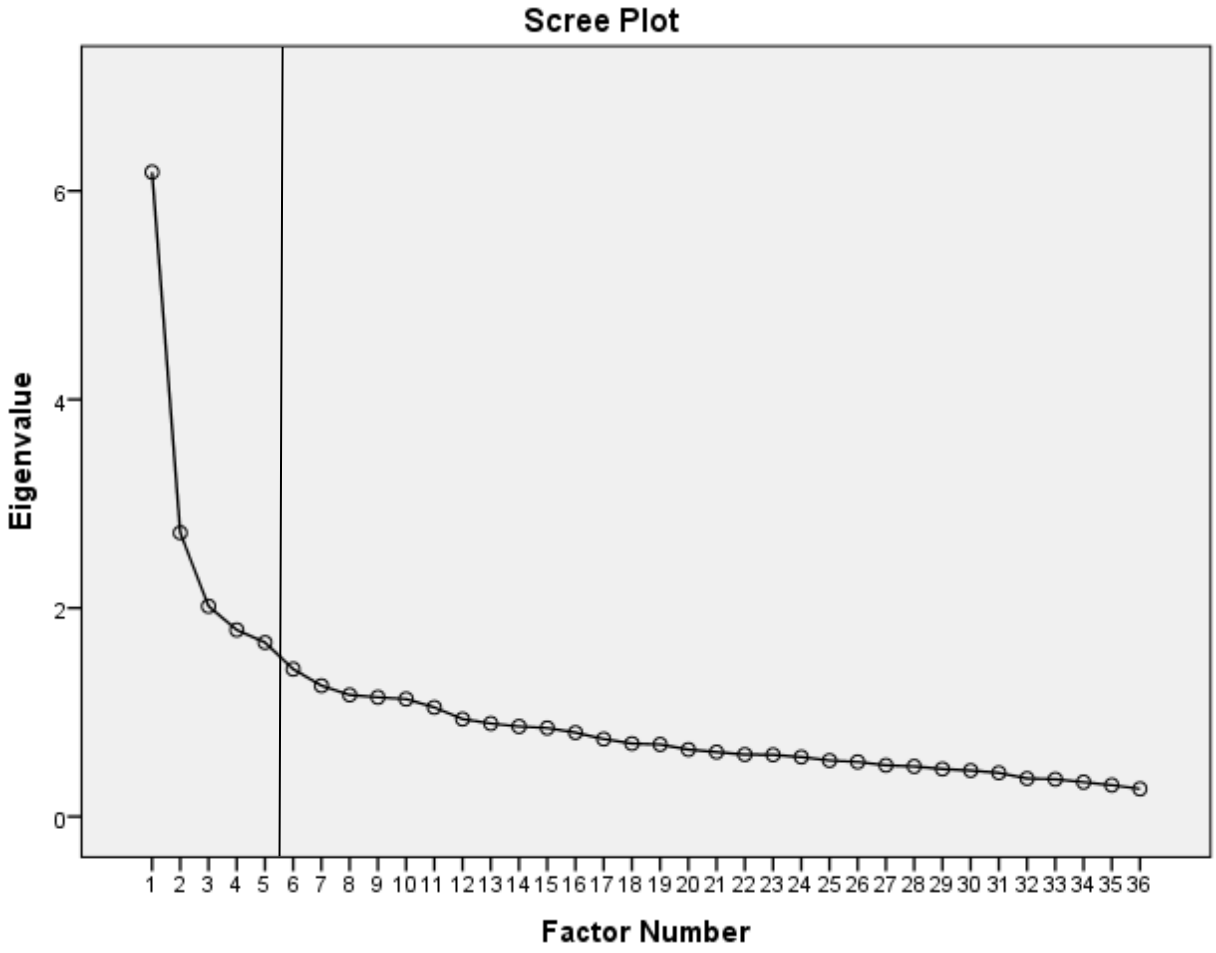
Note. Only factors with initial eigenvalues above 1.0 are shown.

Table 18 shows the eigenvalues for each factor and the total percent of variance that is explained by each. As seen in Table 18, the five factors extracted explained 31.29% of the variance in the items, and all five factors have eigenvalues of 1 or higher. The amount of variance explained by the five factors ranged from 15.45 to 2.79. The sometimes-small amount of variance explained by the factors, coupled with fairly low/moderate extraction communalities, does not seem to imply a particularly strong five factor structure.

The scree plot below, Figure 2, graphs the eigenvalues and is ordinarily used to help determine the number of factors to extract. This was the scree plot that was used earlier, in part, to determine how many factors to extract from SPSS.

Figure 2

Scree Plot of the Factor Eigenvalues



As can be seen in the scree plot, there clearly appears to be two distinct factors and even as many as three more for a total of five possible factors. It is difficult to determine exactly where the factors drop appreciably in terms of their eigenvalues, but it appears to be between factors five and six. There is a reference line in the scree plot indicating this drop. Thus, I extracted five factors for initial analysis and reporting purposes. This decision was also supported by the desire to test a five-factor theory of the MSSE's internal structure. While the first five factors clearly stand out from the rest, the scree plot also suggests that there may even

be additional factors underlying these data (as many as eleven have eigenvalues of one or larger); thus these factor structures are explored later.

Table 19 presents the structure matrix for the five factor Promax solution which contains the correlation between each variable and factor.

Table 19

Rotated Factor Structure Matrix (Promax)

	Factor				
	1	2	3	4	5
Q60. SCE ENVSUPRT	.73	.42	.38		
Q69. SCE ENVFAC	.65	.34	.33		
Q61. EEE ENVDIVRS	.61				.32
Q62. SCE ENVEMPLY	.60				
Q64. SCE ENVSOCIAL	.59				
Q63. SCE ENVNACAD	.56				
Q68. SCE ENVSTU	.44				
Q16. SFI FACFEED	.41	.40	.35		
Q67. EEE EMVCOMP		.30	.36		
Q70. SCE ENVADM					
Q8. ACL CLASSGRP					
Q9. ACL OCCGRP					
Q27. LAC EVALUATE		.67			
Q26. LAC SYNTHESIZE		.65			
Q25. LAC ANALYZE		.58			
Q28. LAC APPLYING	.35	.52			
Q10. ACL INTIDEAS		.45	.32		
Q20. ACL OCCIDEAS		.44	.43		
Q15. SFI FACIDEAS			.72		
Q14. SFI FACPLANS			.65		
Q13. SFI FACDISCUSS		.45	.60		
Q18. SFI FACOTHER			.55		.36
Q19. SFI FACRESEARCH			.40		
Q46. LAC READASSG				.76	
Q47. LAC PREPNOREAD				.75	
Q59. LAC ENVSCHOL		.37		.48	
Q17. LAC WORKHARD		.40	.35	.45	
Q29. LAC WRITEMOR				.41	
Q53. EEE COCURR					
Q30. LAC WRITEMED					
Q58. EEE COMMUN					
Q31. LAC WRITESML		.31	.33		
Q21. EEE DIVERSTUD		.35	.39		.65
Q22. EEE DIFFFSTUD					.63
Q6. EEE DIVCLASS		.36			.37
Q52. EEE INTERNUPD					

As indicated in Table 19 above, the Promax rotated solution shows that groups of items cluster around each of the five factors, with structure coefficients above .3. Coefficients less than .3 were intentionally omitted. Twenty-nine of the 36 items load on a particular factor above .3. Nine items load positively on factor one, a factor that appears to measure a supportive campus environment as those items pertain to the expectations of the program to provide support for students to succeed academically (question 60, the highest structure coefficient for this factor at .73), develop relationships with faculty (question 69, loading at .65), encourage contact among students from different backgrounds (item 61, loading at .61), succeed in a job search (item 62, loading at .60), provide a social environment for students (question 64, loading at .59), help in non-academic areas (item 63, loading at .56), and develop relationships with other students (question 68, loading at .44). Six of the nine items with high positive loadings come from the supportive campus environment benchmark. Item 61 (from the enriching educational experiences benchmark) asks students to report the extent to which their program encourages contact among students from different backgrounds and loads fairly high at .61, which seems to fit well within this particular factor.

Factor two has fourteen items loading positively above .3, four of which are from the level of academic challenge benchmark (items 25 through 28) and ask students to report on the rigor of the curriculum (how much coursework emphasizes analyzing, evaluating, synthesizing, and applying theories). One other item from the level of academic challenge benchmark loads on this factor, and asks students about faculty expectations in determining how hard they will work. Two additional items from the active and collaborative learning benchmark load on factor two also; item 10 asks the extent to which students put together concepts or ideas from different courses and item 20 asks the extent to which students discuss ideas outside of class with friends

and family members. While these items do not load as strongly (.45 and .44 respectively) as the level of academic challenge items, a case might be made for the inclusion of item 10 in a factor that measures *academic rigor* because integration is a higher-order cognitive outcome. One item, 13, which asks students how much they discuss assignments with faculty members, also loads weakly on this factor at .45. It is worth reiterating that these loadings were fairly low.

Also loading on the second factor are several items asking about time studying and relationships within the program. Item 59, loading at .37 asks the amount of time students spend studying or on academic work, item 60 which asks about the quality of relationships with faculty (loading at .34), item 31 which asks about written work of 5 pages or less, and the items which ask about diverse conversations and class discussions (item 21 at .31 and item 6 at .36). It is important to note that items 16, 17, 21, 59, 67, and 69 also load higher on other factors.

Of the twelve items loading above .3 on factor three, six are from the student-faculty interaction benchmark and the others all load higher on other factors. These include item 60 (helping students succeed academically) which loads at .38, item 69 (quality of relationships with faculty) which loads at .33, item 16 (receiving prompt feedback from faculty) which loads at .35, item 67 (using computers in academic work) which loads at .36, item 10 (integrating concepts from different courses) which loads at .32 and item 17 (working hard to meet faculty expectations) which loads at .35. As previously described, item 20 also loaded on factor two, but much its loading on factor three the item's loading on factor two is relatively weak at .44. Item 17 likewise loaded on factor two at .40 (and as will be seen it also loaded on factor four).

Factor four has five items with loadings above .3, all from the level of academic challenge benchmark. This is the second factor with items loading on it from the level of academic challenge benchmark, though these items are distinct from factor two in that they ask

students about how much reading they do (item 46, loading at .76), how much preparation they do other than reading (item 47, loading at .75) and how much their program emphasizes preparation (item 59, loading at .48). Question 17 (working hard to meet faculty expectations) which also loaded on factor two has a somewhat stronger loading on factor four at .45.

Finally, factor five has five items that load on it: Items 21 and 22 (loading at .60 and .57 respectively), both of which ask students how often they have had serious conversations with people who are different than they in terms of their race/ethnicity or belief systems; item 18 (loading at .36) which asks if students have worked with faculty on activities other than coursework; item 6 (loading at .33) which asks the extent to which students incorporated diverse perspectives in class; and item 61 (loading at .32), which asks students the extent to which their program encourages contact among students from different backgrounds.

Table 20 shows the regression coefficients for each item when each factor is predicted from all of the items. The pattern matrix then shows the unique relationship between each item and the factor, while accounting for all other items, much like in multiple regression analysis.

Table 20

Rotated Factor Pattern Matrix (Promax)

	Factor				
	1	2	3	4	5
Q60. SCE ENVSUPRT	.67				
Q64. SCE ENVSOCIAL	.63				
Q61. EEE ENVDIVRS	.63				
Q62. SCE ENVEMPLOY	.61				
Q69. SCE ENVFAC	.61				
Q63. SCE ENVACAD	.57				
Q68. SCE ENVSTU	.47				
Q67. EEE ENVCOMP	.35				
Q8. ACL CLASSGRP					
Q70. SCE ENVADM					
Q16. SFI FACFEED					
Q9. ACL OCCGRP					
Q27. LAC EVALUATE		.74			
Q26. LAC SYNTHESIZE		.70			
Q25. LAC ANALYZE		.65			
Q28. LAC APPLYING		.49			
Q10. ACL INTIDEAS		.39			
Q20. ACL OCCIDEAS		.32			
Q58. EEE COMMUN					
Q15. SFI FACIDEAS			.75		
Q14. SFI FACPLANS			.66		
Q18. SFI FACOTHER			.60		
Q13.SFI FACDISCUSS			.52		
Q19. SFI FACRESRCH			.49		
Q47. LAC PREPNOREAD				.78	
Q46. LAC READASSG				.75	
Q59. LAC ENVSCHOL				.41	
Q29. LAC WRITEMOR				.35	
Q17. LAC WORKHARD				.35	
Q30. LAC WRITEMD					
Q53. EEE COCURR					
Q31. LAC WRITESML					
Q21. EEE DIVRSTUD					.60
Q22. EEE DIFFSTUD					.57
Q6. EEE DIVCLASS		.31			.33
Q52. EEE INTERNUPD					

The pattern matrix shows five factors that appear to be clearly defined, with 27 items loading above .3 and only one item loading on more than one factor. Nine items do not load above .3 on any of the five factors.

For the first factor, eight of the items had pattern coefficients of greater than .3, six of which were from the supportive campus environment benchmark. As previously discussed in the Promax structure matrix in Table 19, the two items that were not from the SCE benchmark that loaded on factor one above .3 (items 61 and 67, both from the enriching educational experiences benchmark) fit naturally with the rest of the items, all of which asked about the overall environment for master's students. Item 61 asked the extent to which the master's program encouraged contact among students from different backgrounds while item 67 asked about the extent to which the master's program emphasized using computers in academic work.

Factor two has seven items, four of which are from the level of academic challenge benchmark—with pattern coefficients ranging from.74 (question 27) to .49 (question 28)—and two of which are from the active and collaborative learning benchmark—with pattern coefficients of .39 (question 10) and .32 (question 20). While these loadings are relatively weak, they seem to fit with the other items loading on this factor, which ask about the intellectual engagement of the curriculum. Item 10 asks about the extent to which students put together concepts from different courses when completing assignments, while item 20 asks the extent to which students discuss ideas outside of class.

Factor three has five items from the student-faculty interaction benchmark that load above .3, all of which ask students about their interactions with faculty. Three of the items load fairly high on this factor, item 15 (loading at .75) which asks students if they discuss ideas from their classes with a faculty member, item 14 (loading at .66) which asks students if they talk

about career plans with a faculty member, and question 13 which asks if students have discussed assignments with a faculty member. Item 19, which asks if students have worked with a faculty member on a research project, show the weakest loading of the four items at .49.

Factor four has five items that load above .3 (item 47 at .78, item 46 at .75, item 59 at .41, item 29 at .35 and item 17 at .35) all of which are from the level of academic challenge benchmark. Moreover, all of these items are about academic preparation – time spent reading course materials, time preparing for class, the extent to which the master's program emphasizes preparation, the amount of writing, and the extent to which students work hard to meet faculty expectations.

Finally, factor five has three items from the enriching educational experiences benchmark that load above .3. Two of the items (item 21 loading at .60 and item 22 loading at .57) ask students about the extent to which they had "serious conversations" with students from different races/ethnicities and belief systems. Item 6 asks students to what extent they included diverse perspectives in class discussions or reading assignments. A dimension that captures items around diversity seems to have emerged here.

Some items that did not load above .3 on any the five factors were not strongly contributing to the measurement of a dimension. For the purpose of research question two and generating factor scores, I left these items in as this study seeks to replicate the NSSE as much as possible.

What is notable in the pattern matrix is that the level of academic challenge benchmark items broke out and loaded on two distinct factors, the first being academic rigor (factor two) and the second being academic preparation (factor four). This may mean that for master's students, the challenge of the academic program and the time spent preparing for class are two different

facets of engagement and should be considered as separate dimensions. As for factor five, which appears to measure some kind of diversity dimension, it is not clear if a factor emerges because the questions are about *conversations* about diverse viewpoints (with peers and in class discussions) or because it is a distinct diversity-related experience dimension that helps describe the master's student experience. While item 6 loaded weakly on this factor, it does align with the broader diversity-related interpretation. It is worth exploring as a distinct dimension for master's students for the second research question, so for that reason I will include it as a possible factor in this exploratory study, even though it is largely defined by three items. Future research could explore whether the factor is best thought of in terms of *discussions* around diversity issues, or a broader diversity-related dimension of the master's student experience.

Nine items do not feature pattern coefficients above .3, and these include items 8 (worked with classmates during class), 9 (worked with classmates outside of class), 16 (feedback from faculty), 30 (written papers between 5 and 19 pages), 31(written papers fewer than 5 pages) , 52 (working at an unpaid internship), 53 (co-curricular involvement), 58 (participating in the broader community), and 70 (relationships with administrators). This suggests that many of the items on the MSSE (about 30%) do not contribute to the sound measurement of an engagement dimension.

While there are some similarities between the five factors that emerged from the MSSE and the hypothesized five factors from the NSSE, the exploratory factor analysis of the MSSE suggests some differences between the MSSE and the NSSE with respect to their internal structure. To aid in the interpretation of the MSSE dimensions, it is suggested that the reader refer to Appendix D, which includes the items, variable name, and full question for each of the

engagement dimensions. The five factors that emerged from the analysis, and their new corresponding dimension name, are presented in Table 21 below.

Table 21

Engagement Dimensions for the MSSE

Factor	MSSE Engagement Dimension Name
1	Supportive Campus Environment (SCE)
2	Level of Intellectual Engagement (LIE)
3	Student-Faculty Interaction (SFI)
4	Level of Academic Preparation (LAP)
5	Experiences of Campus Diversity (ECD)

As Table 21 indicates, two of the benchmark dimensions will keep their NSSE benchmark label, supportive campus environment (SCE) and student-faculty interaction (SFI). This is not surprising as items in these two dimensions were clustered together consistently in the earlier presentation of the correlation matrices, reliability analyses, and in the rotated solutions for the factor analysis. As the reader will recall, items in the level of academic challenge (LAC) benchmark category loaded moderately-to-highly on two different factors. Therefore, two new engagement dimensions emerged from the original NSSE LAC benchmark category. The first dimension regards the level of intellectual engagement required in the coursework, as the items loading above .3 on that factor ask students the extent to which they analyze and synthesize ideas and concepts, evaluate arguments, and apply theory to everyday situations. This new MSSE dimension will be called level of intellectual engagement and will be referred to by the acronym LIE. The second dimension that emerged from the original level of academic challenge benchmark is about students' preparation for class – how much reading they do, how much

homework and writing they do, and how much they perceive the program to emphasize studying and class preparation. This new dimension will be called level of academic preparation and will be referred to by the acronym LAP. Finally, a new dimension called experiences of campus diversity will be referred to by the acronym ECD. This dimension relates to the interactions that students have with those who are different from them in terms of background and belief system and to how much students integrate diverse perspectives into class discussions and written work.

The reader will recall that an oblique solution allows the factors to be correlated. Table 22 shows the correlations between the five factors.

Table 22

Correlations Between MSSE Factors

Factor	SCE	LIE	SFI	LAP	CDE
Supportive Campus Environment (SCE)	1	.47	.38	.11	.12
Level of Intellectual Engagement (LIE)	-	1	.49	.31	.11
Student-Faculty Interaction (SFI)	-	-	1	.32	.18
Level of Academic Preparation (LAP)	-	-	-	1	.07
Experiences of Campus Diversity (ECD)	-	-	-	-	1

As Table 22 shows, the Promax solution is plausible as there are some correlations among the factors. Factor one (supportive campus environment), and factor two, (intellectual engagement), correlate at .47 which means that these two factors are moderately related. Factor two (intellectual engagement) and factor three (student-faculty interaction) show a correlation of similar magnitude at .49. The two factors which emerged from the original level of academic challenge benchmark, factors two (intellectual engagement) and four (academic preparation) show a relatively weak correlation. Interestingly, the perceived intellectual rigor of the curriculum is only slightly positively associated with the level of student preparation for their courses. Factor five, (diversity experiences), shows a fairly weak correlation with any of the

other factors, which implies that the levels of diversity engagement are only slightly associated with the other engagement dimensions. This may also be the case because there are only three items in this factor.

The final factor solution selected for this study was the five-factor Promax rotated solution. However, I also conducted factor solutions that hypothesized one factor through 11 factors. As stated earlier, the eigenvalue dropped below one at factor 12, signifying that less than one item's worth of item variance was accounted for by factor 12 and subsequent factors. I examined the 2-11 factor solutions using the Promax rotations since I theorized the factors would be correlated; a one-factor solution cannot be rotated. There were some interesting findings from these analyses which I will highlight next.

For the three-factor solution, the items clustered similarly to the first two factors of the five factor solution (supportive environment and academic challenge) but diverged for the third factor, which comprised a mix of student-faculty interaction and enriching educational experience items. When I specified four factors, these same first two factors held up (supportive environment and academic challenge) and the student-faculty interaction items tended to load on the third factor. The fourth factor included level of academic challenge items about class preparation that all loaded above .4.

Some interesting things also happened at factor solutions above five factors. Using a six-factor solution, the factors are nearly identical to the five-factor solution, but no items load above .3 on a sixth factor. However, when the seven-factor solution was examined, the student-faculty interaction items split into two distinct factors. Factor six captured items that ask students about direct work with faculty (on a research project or committee/activities) while factor seven captured items that deal exclusively with a student's communication with faculty.

Clearly, the seven-factor solution implies that these two student-faculty interaction set of items represent distinct dimensions. This is perhaps not surprising, as some disciplines include research while others do not and thus one could be "high" on faculty communication regardless of their level of research engagement with faculty. Nevertheless these factors would include only a few items each.

The eight-factor solution has one item (question 9) loading highly on a distinct factor at .81. This item asks students to report the extent to which they worked with students outside of class to prepare assignments. This suggests something unique about this particular item (e.g., collaborative learning) relative to the other data collected by the MSSE.

While it is interesting that the seven-factor solution split the SFI items across two factors, it is possible that a dimension that measures a student's direct work with faculty (e.g., research, question 19) may not be applicable for all master's students.[2] However, I contend that one dimension which captures a breadth of student-faculty interactions is more appropriate for this study. Finally, while the eight factor solution shows one item (i.e., doing work with students outside of class) that loads highly on an additional factor, a single item is insufficient to measure an engagement dimension if it exists. For these reasons, I chose not to treat it as a separate factor. Future research should examine whether this item might signify another dimension, hopefully using additional items to measure such a dimension. After a thorough analysis of all 11 factor solutions, I decided to use the five factor solution for my final analysis.

[2] The responses to Question 19 were in fact different. A one-way ANOVA was conducted which showed there were significant differences between academic disciplines. Students in business reported that they worked with a faculty member on a research project significantly less than did students in arts and sciences and education. There was no significant difference between arts and sciences and education.

Reliability of Items in Each MSSE Engagement Dimension

Finally, I looked at the internal consistency of each new engagement dimension on the MSSE using Cronbach's Alpha. Items with a pattern coefficient higher than .3 for a particular dimension were selected for the reliability analysis. As I did with the NSSE benchmarks, I requested that SPSS compute the corrected item-total correlation for each item, which is the correlation of each item with the rest, and also the reliability estimate if each item was removed.

The overall reliability for the new supportive campus environment (SCE) engagement dimension was strong at .79. Table 23 provides the reliability estimates for items in the SCE engagement dimension.

Table 23

Corrected Item-Total Correlations and Reliability Estimates for Supportive Campus Environment (SCE) items

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q60	0.61	0.74
Q61	0.56	0.75
Q62	0.54	0.76
Q63	0.51	0.76
Q64	0.54	0.76
Q67	0.29	0.80
Q68	0.38	0.78
Q69	0.52	0.76

As Table 23 indicates, the overall reliability estimate does not change in a substantial way when any of the items are removed, and with the exception of item 67, the estimate decreases when each item is removed.

Items within the level of intellectual engagement (LIE) dimension are reliable with a Cronbach's Alpha of .74. Table 24 provides the corrected item-total correlations and reliability estimates for items in the LIE dimension.

Table 24

Corrected Item-Total Correlations and Reliability Estimates for Level of Intellectual Engagement (LIE) items

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q10	0.43	0.71
Q20	0.36	0.73
Q6	0.34	0.73
Q25	0.46	0.71
Q26	0.58	0.68
Q27	0.53	0.69
Q28	0.47	0.70

As can be seen in the above table, all seven of the items had corrected item-total correlations above .2. Item 20 and item 6 showed weaker correlations with the rest of the items at .36 and .34 respectively, but they are still sizeable. The Cronbach's Alpha does not increase with the removal of any of the items.

The Cronbach's Alpha for the student-faculty interaction (SFI) engagement dimension was .74 so the dimension was deemed reliable. Table 25 presents the corrected item-total correlations and reliability estimates for the SFI engagement dimension.

Table 25

Corrected Item-Total Correlations and Reliability Estimates for Student-Faculty Interaction (SFI) items

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q13	0.44	0.70
Q14	0.57	0.65
Q15	0.54	0.66
Q18	0.50	0.67
Q19	0.38	0.72

As indicated in Table 25 above, the corrected item-total correlations range between .38 and .57 which are all acceptably high. The overall reliability estimate would decrease if any of the items were removed.

The items in the level of academic preparation (LAP) engagement dimension were considered reliable with a Cronbach's Alpha of .71 which is above the accepted reliability level of .7. Table 26 provides the corrected item-total correlations and reliability estimates for items in the LAP dimension.

Table 26

Corrected Item-Total Correlations and Reliability Estimates for Level of Academic Preparation (LAP) items

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q17	0.44	0.67
Q29	0.32	0.72
Q46	0.60	0.60
Q47	0.54	0.63
Q59	0.44	0.67

As Table 26 indicates, an increase in reliability would occur with the removal of item 29 but this increase would be negligible (from .71 to .72). All of the items are correlated above .2.

The overall reliability of the experiences of campus diversity (ECD) dimension was less than optimal, with Cronbach's Alpha for the ECD items at .67. Table 27 provides the corrected item-total correlations and reliability estimates for the ECD dimension.

Table 27

Corrected Item-Total Correlations and Reliability Estimates for Experiences of Campus Diversity (ECD) items

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q21	0.57	0.47
Q22	0.60	0.42
Q6	0.31	0.79

As presented above, while the overall reliability is borderline acceptable, all of the item-total correlations are above the minimally accepted level of .2. Removing item 6 would increase the Cronbach's Alpha, and this item had the weakest correlation with the other items and thus shares less in common with the others. This is not a surprise because this item had the lowest factor loading. The moderate reliability could be due to the small number of items within the dimension. As a general rule, reliability increases when related items are added.

Conclusion for Psychometric Analyses

After conducting the factor analysis it appears that there is a MSSE factor structure that is defensible for exploratory research purposes, with five factors of engagement emerging. However, the quality of the factor structure is not very strong for several of the factors, with low extraction communalities and low overall factor loadings. Further, in the final Promax rotation, 11 items did not have structure or pattern coefficients of .3 or higher. While I am proceeding

with the analyses for research question two, further work to improve the instrument is warranted and is discussed in depth later.

Convergent Construct Validity

As previously described, research question one also asks about the extent to which the MSSE benchmark scores are correlated with theoretically relevant indicators of positive outcomes of higher education such as grade point average and constructs such as critical thinking. As a reminder, several items on the MSSE asked students to assess their own development on a set of positive educational outcomes including critical thinking, understanding oneself, speaking clearly and effectively, and acquiring a broad disciplinary education, among others (see Appendix A, question 10). These outcomes listed under the sub-header outcomes in Appendix B. Table 28 shows the items on the MSSE that ask students to assess their educational outcomes and the correlations of each with the five MSSE engagement dimensions.

Table 28

Outcome Items and MSSE Engagement Correlations

	Q71. Acquiring a broad disciplinary education	Q72. Writing clearly and effectively	Q73. Speaking clearly and effectively	Q74. Thinking critically and analytically	Q75. Using computing and information technology	Q76. Developing research skills	Q77. Working with others	Q78. Learning on your own	Q80. Understanding people of other racial and ethnic backgrounds	Q81. Solving complex real-world problems	Q82. Developing clear career goals
SCE	.39**	.34**	.38**	.40**	.36**	.28**	.48**	.34**	.45**	.46**	.45**
LIE	.39**	.41**	.37**	.50**	.29**	.45**	.25**	.41**	.23**	.32**	.31**
SFI	.31**	.34**	.30**	.36**	.22**	.40**	.16**	.34**	.25**	.20**	.27**
LAP	.15**	.25**	.16**	.23*	.22**	.31**	.09*	.32**	.17**	.08	.10*
CDE	.01	.14**	.11*	.12**	.11*	.07	.13**	.09	.39**	.16**	.22**

Note. The *N*s for these correlations ranged from 490 to 495. Shaded areas indicate the hypothesized correlations between specific items (outcomes) and engagement dimensions, found in Appendix B. *p<.05. **p<.01.
Note. SCE = supportive campus environment; LIE = level of intellectual engagement; SFI= student-faculty interaction; LAP= level of academic preparation; CDE= campus diversity experiences.

In theory, the engagement dimensions should be correlated with some of these items. As indicated in Table 28, many of the items were in fact significantly correlated with an engagement factor. The *a priori* criterion for considering a correlation as meaningful validity evidence was .3. The correlations with the DCE benchmark were generally smaller than those for the other dimensions.

Table 29 shows the correlations between the MSSE engagement dimensions and self-reported graduate point average.

Table 29

Correlations Between MSSE Engagement Dimensions and Grade Point Average

Dimension	Q100 Grades
Supportive Campus Environment (SCE)	-.01
Level of Intellectual Engagement (LIE)	.05
Student-Faculty Interaction (SFI)	-.01
Level of Academic Preparation (LAP)	.03
Experiences of Campus Diversity (ECD)	-.01

As Table 29 displays, none of the engagement dimensions are significantly correlated with self-reported grade point average.

Data Analysis - Research Question 2

Research question two sought evidence of a relationship between each MSSE engagement dimension and seven individual characteristics of academic discipline, gender, age, marital status, children, international student status and enrollment status. I also examined the interaction between gender and academic discipline. Five multiple regression analyses were conducted; each multiple regression analysis examined the extent to which a particular

engagement dimension (dependent variable) could be predicted by the seven independent variables.

With the exception of age, all variables were dummy coded such that 0 represents the absence of a characteristic whereas 1 represents the presence of a characteristic. The reference group for academic discipline was arts and sciences (dummy variables for business and education), the reference group for gender was male, the reference group for enrollment status was full-time, the reference group for marital status was single, the reference group for children status was no children, and the reference group for international student status was domestic (American) student.

Collinearity (i.e., correlations among predictors) can be problematic in multiple regression, as variables which are highly correlated are either redundant or can affect the estimated regression coefficients for the predictors. Before proceeding with the multiple regressions I looked at correlations among the independent variables to identify possible collinearity issues. The interaction of women and education was highly correlated with the dummy variables for education (.82) and gender (.64). All other correlations were below .6, and correlations ranged from -.34 (the interaction effect of women and education and the dummy variable for business) to .56 (the dummy variables for children and education). Because of this, I ran a regression with just the main effects first. Doing so excluded variables that were potentially problematic in terms of introducing collinearity. Then, I ran separate multiple regression models that also included the interaction effect variables.

Because there was no significant relationship between the interaction of gender and academic discipline and any of the engagement dimensions, I will present regression results for the models that contain only the main effects of gender, academic discipline, enrollment status,

marital status, children, age, and international student status. Prior to presenting the five multiple regression models, I will present the descriptive statistics for the predictors in Table 30 below.

Table 30

Descriptive Statistics for Predictor Variables

Variable	%	Number	Standard Deviation
Gender: Female	57%		
Gender: Male	43%		
Discipline: Arts and Sciences	13%		
Discipline: Business	42%		
Discipline: Education	45%		
Enrollment status: Full-time	49%		
Enrollment status: Part-time	51%		
Single	71%		
Married/Partnered	29%		
Children	9%		
Domestic student (American)	87%		
International student	13%		
Age		28.61	5.84

Note: N=475.

As Table 30 shows, just over half of the students in the sample are part-time, with the average age of all students 28 years. Women represent 57% of the sample. Education students comprise 45% of the sample, business students 42%, and arts and sciences students 13%. Twenty-nine percent of the students are married and 9% of students in the sample have children. International students comprise 13% of the population. In the next section I will present the five multiple regression analyses, one for each of the MSSE engagement dimensions.

For the regression analyses, all of the predictors were entered into model simultaneously because they were all of interest. In the first regression, supportive campus environment (SCE), the overall regression model was significant, $F(8,466) = 2.96$, $p < .05$. It explained 4.8% of the SCE engagement variability. Table 31 presents the regression results for the predictors.

Table 31

Regression Coefficients for the Supportive Campus Environment (SCE) Dimension

Independent Variable	Standardized Coefficients
Gender	.03
Education	.25***
Business	.25**
Part-time	-.07
Married/Partnered	0
Children	-.10
Age	.02
International	.05

*p<.05. **p<.01. ***p<.001

As shown in Table 31 above, the predictor variables of education and business were significant, indicating that these variables predict engagement in the SCE dimension while controlling for the other variables. Students in education (.25) and business (.25) were more likely to experience a supportive campus environment than students in arts and sciences. This suggests that in master's programs in business and education, facets such as relationships (with both peers and faculty members), social opportunities, academic and non-academic resources, and assistance in an employment search were more common than in arts and sciences. The strengths of these relationships are small to moderate. None of the other predictor variables were significant.

The next regression features level of intellectual engagement (LIE) as the dependent variable. Again, the overall regression model was significant, $F(8,466) = 2.44$, $p < .05$ and explained 4.0% of the LIE engagement variability. Table 32 presents the regression results for the predictors.

Table 32

Regression Coefficients for the Level of Intellectual Engagement Dimension

Independent Variable	Standardized Coefficients
Gender	.03
Education	-.24**
Business	-.22**
Part-time	-.08
Married/Partnered	0
Children	-.17
Age	.03
International	.09

*p<.05. **p<.01. ***p<.001

As Table 32 indicates there is a significant relationship between level of intellectual engagement and the predictor variables of education and business while accounting for the other variables. Students in business (-.22) and education (-.24) were more likely to experience a less rigorous academic experience than students in arts and sciences. This implies that compared to students in arts and sciences, students in business and education spend less time analyzing the basic elements of an idea, synthesizing ideas into more complex interpretations, or assessing the soundness of a method.

The third regression is student-faculty interaction (SFI). The overall regression model was significant, $F(8,466) = 6.22$, $p < .001$ and it explained 9.6% of the SFI engagement variability. Table 33 presents the regression results for the predictors.

Table 33

Regression Coefficients for the Student-Faculty Interaction (SFI) Dimension

Independent Variable	Standardized Coefficients
Gender	-.04
Education	-.45***
Business	-.36***
Part-time	-.10*
Married/Partnered	.01
Children	-.00
Age	-.02
International	.08

*p<.05. **p<.01. ***p<.001

As Table 33 illustrates, the predictor variables of education, business, and part-time status were significant, indicating that these variables predict engagement in the student-faculty interaction dimension while accounting for all other variables. Students in business (-.36) or education (-.45) and part-time students (-.10) were likely to have less frequent interaction with faculty members than students in arts and sciences or full-time students. This suggests that business and education students and part-time students spend less time working with faculty on projects outside of class, spend less time discussing course concepts and ideas with faculty members, may not engage faculty in their job search, or may work less with faculty on research projects as compared to arts and sciences students.

The fourth regression is on level of academic preparation (LAP). The overall regression model was significant, $F(8,466) = 16.31$, $p < .001$ and it explained 21.9% of the LAP engagement variability, considerably more than the previous regression analyses. Table 34 presents the regression results for the predictors.

Table 34

Regression Coefficients for the Level of Academic Preparation (LAP) Dimension

Independent Variable	Standardized Coefficients
Gender	.00
Education	-.36***
Business	-.38***
Part-time	-.28***
Married/Partnered	-.09
Children	-.09
Age	.20***
International	.20***

*p<.05. **p<.01. ***p<.001

As Table 34 above indicates, the predictor variables of education, business, part-time status, age, and international student status were significant, signifying that these variables predict engagement in the level of academic preparation dimension while accounting for the other variables. Being in the disciplines of business (-.38) and education (-.36) were associated with a decrease in academic preparation relative to arts and science students. This suggests that students in education and business may spend less time preparing for class (reading, writing, and studying) than do students in arts and sciences. Being a part-time student is associated with a decrease in this engagement dimension as well. The effect of being an international student shows an increase in level of academic preparation at .20, suggesting that international students spent more time getting ready for class. Also, being older is associated with an increase in their level of academic preparation.

The final regression is Experiences of Campus Diversity (ECD). The overall regression model was significant, $F(8,466) = 11.22$, $p < .001$ and it explained 16.20% of the engagement variability. Table 35 presents the regression results for the predictors.

Table 35

Regression Coefficients for the Experiences of Campus Diversity (CDE) Dimension

Independent Variable	Standardized Coefficients
Gender	-.07
Education	.36***
Business	.03
Part-time	-.11**
Married/Partnered	-.05
Children	-.11
Age	-.14**
International	-.07

*p<.05. **p<.01. ***p<.001

As Table 35 indicates, the predictor variables of education, part-time status, and age were significant, indicating that these variables predict engagement in the diversity experiences dimension while accounting for other variables. Being in education (.36) was associated with an increase in campus diversity experiences, signifying that students in education likely have more serious conversation with people who are different races/ethnicities or different belief systems than arts and sciences students do. There was not a significant difference for business students. Being a part-time student (-.11) was associated with a decrease in campus diversity experiences as compared to full-time students. With regard to age (-.14), older students exhibit lower engagement in the ECD dimension.

Conclusion for Regression Analysis

The results of the five regression analyses provided evidence of a relationship between each MSSE engagement dimension and some, but not all, of the individual characteristics of academic discipline, gender, age, marital status, children, international student status and enrollment status. Most notable was that academic discipline was related to each of the

engagement dimensions, while part-time status was related to three of the engagement dimensions (student-faculty interaction, academic preparation, diversity). Age was related to two of the engagement dimensions (academic preparation and diversity) and international student status was related to one dimension (preparation). The overall LAP and ECD models were stronger than the rest in terms of engagement variance explained. There were no significant findings for gender, marital status, or children.

Conclusion

This chapter reported the findings of this study on master's student engagement, specifically evidence of the construct validity of the MSSE: the extent to which it measured both the five hypothesized dimensions of engagement in master's students as well as the extent to which scores correlated with theoretically relevant constructs. Relationships between each engagement dimension and the individual characteristics of academic discipline, gender, age, marital status, children, international student status and enrollment status were also reported.

While the five factor structure held up, three of the five factors were not very strong. One of the original NSSE benchmark dimensions (level of academic challenge) emerged as two separate engagement dimensions (intellectual engagement and academic preparation) for master's students, suggesting that the level of academic challenge has two dimensions for master's students. Further, many of the outcome items correlated positively with the engagement dimensions. In addition, none of the engagement dimensions were significantly correlated with self-reported grade point average.

With regard to the regression analyses, several significant relationships emerged between the engagement dimensions and individual characteristics, particularly with regard to academic discipline. However, some of the individual characteristics such as gender and marital status

showed no relationship to each of the engagement dimensions. Chapter five will address these findings and discuss the implications for policy and practice in master's education.

Chapter Five: Discussion

Introduction

This chapter will discuss the findings from this study on master's student engagement and is organized into six sections. The first section provides an overview of the study and reviews the problem, purpose of the study, and research questions. The second and third sections addresses the findings for each of the two research questions, and links the findings for each question to previous research, presents the major conclusions, and discusses the implications drawn from the findings. The fourth section addresses the limitations of the study. The fifth section offers recommendations for policy, practice, and further research. The chapter closes with a final summary of the study, as well as the researcher's reflections and responses to the findings.

Overview of the Study

Master's education is the largest segment of graduate education in the United States, yet there are few studies that examine the master's student experience. Accrediting bodies and professional standards expect that practitioners will assess and provide evidence of the student experience, so it is no longer sufficient for anecdotal evidence to inform programs and practice. The concept of student engagement, which represents the time and effort students devote to activities that are linked to educational outcomes and what institutions do to promote student participation in these activities, is discussed in the literature mostly as an undergraduate construct. Research shows that the more students are engaged in educationally effective practices the more likely they are to learn (Kuh, 2001; 2003; 2009a; Wolf-Wendel, Ward, & Kinzie, 2009). This study was grounded in the engagement literature, with a focus on Alexander Astin's (1984) theory of student involvement, Vincent Tinto's (1975; 1993; 1998) theory on the

effects of social and academic integration on student departure, and Ernest Pascarella's (1985) and later Pascarella and Patrick Terenzini's (2005) general causal model for assessing the effects of the environment on student learning. One of the most widely used instruments that measures undergraduate student engagement is the National Survey for Student Engagement (NSSE), which captures five key areas for engagement, called benchmarks.

The purpose of this study was to investigate engagement among master's students and the extent to which master's students are engaged in educationally effective practices thought to promote student learning. Practitioners cannot assume that the organizational structures, individual behaviors, and relationships that comprise undergraduate student engagement generalize to master's students. This study therefore sought to extend engagement research to master's students using an adapted version of a national engagement instrument called the Master's Survey of Student Engagement (MSSE). The MSSE is an adaptation of the Law School Survey of Student Engagement (LSSSE), which was adapted from the NSSE in order to measure engagement in law students. The LSSSE is nearly identical to the NSSE in question format, structure and content, but was adapted for the law school context. The MSSE in turn is nearly identical to the LSSSE, with slight adaptations made by changing any law-specific language to more general language for master's students.

This exploratory study first investigated if the internal structure of the MSSE conformed to the five NSSE benchmarks of student engagement, and then explored whether specific outcomes (like writing ability and critical thinking) were linked to the dimensions of engagement. The study then explored if there were significant differences in the engagement levels of master's students by academic discipline, gender, enrollment status, age, marital status, international student status, and children status. The sheer diversity of academic disciplines

within master's education and the wide-ranging personal characteristics of these students present a challenge to educational leaders who seek to understand how these students engage with their academic program, with faculty, and with their peers.

The research questions for this study were:

1. What is the internal structure of the MSSE instrument as it relates to the five NSSE benchmarks of student engagement, and how do its scores relate to relevant educational outcomes?
2. How are the five dimensions of engagement related to the characteristics of academic discipline, gender, age, marital status, children status, international student status, and enrollment status?

Overview of Findings

The findings from this study extend prior research on the topic of student engagement with an unexplored population, master's students. This study's primary research question addressed the construct validity of the MSSE, and the findings present a mixed picture of validity for the MSSE. As the reader will recall, exploratory factor analysis (EFA) was used to investigate the MSSE's internal structure and test a five-factor theory of student engagement based on the National Survey of Student Engagement (NSSE) benchmarks of engagement. A five-factor structure emerged as the best model for master's student engagement and yielded factors that were extracted for analysis, two of which were strong dimensions while three were less strong. This is consistent with two separate institutional-level studies with undergraduates that found a strong five-factor structure for the NSSE was difficult to replicate (Campbell & Cabrera, 2011). The findings, however, reveal that master's students generally engage differently

than undergraduate students with more emphasis on the program environment and intellectual domain.

Following the EFA, correlation analyses were used to determine if the engagement factors were related to a number of relevant higher education outcomes. The study's secondary question addressed how the MSSE dimensions of engagement related to a number of personal and academic characteristics of master's students. Multiple regression analyses showed that relationships existed between the engagement dimensions and some important characteristics such as academic discipline, enrollment status, and age. Other characteristics such as gender and marital status showed no relationship to the engagement dimensions.

In the next section I will discuss what master's student engagement looks like, examining the dimensions of engagement for master's students and articulating how it is distinct from undergraduate student engagement. A discussion about how engagement differs by academic discipline and other important student variables will follow.

The Dimensions of Master's Student Engagement

The MSSE findings show that engagement for master's students is different than engagement for undergraduate students. This is not surprising, as one would expect there to be differences in *how* master's students engage with their program as compared to how undergraduate students engage. Perhaps the overall construct of engagement is different for master's students. Alternatively, the content of the MSSE instrument could also be considered as an explanation for the differences. The National Survey of Student Engagement (NSSE) asks students about their experiences at the institution, not just within their academic program as with the MSSE. This NSSE content likely provides a much broader range of engagement experiences than those captured by the MSSE, which asked master's students specifically about their

experiences within their master's program, not the institution. Notwithstanding these differences, a five-factor structure held up for the MSSE.

Prior research and theory helps to guide the interpretation of the factors that underlie the MSSE items. As the reader will recall, engagement theory was developed as it pertains to the traditional undergraduate population (Alexander & Maher, 2008). The heart of this study centers on whether the undergraduate model of engagement applies to master's students. The findings show that the MSSE instrument used in this study was successful, to some extent, in identifying what activities contribute to master's engagement. The next section will discuss each engagement dimensions and will compare the dimensions of master's student engagement to undergraduate student engagement.

Supportive Campus Environment

The supportive campus environment (SCE) dimension emerged as the strongest engagement dimension for master's students. This dimension measures the extent to which students perceive their program helps them succeed academically and socially, assists them in coping with non-academic responsibilities and a job search, and promotes contact among students from different backgrounds. This is a comprehensive dimension of engagement for master's students which includes both social and academic support. The finding of a supportive environment as strong dimension of engagement for master's students supports Hiemstra's (1991) research on the learning environment. Successful learning environments include relationships (in the case of this study, with faculty and peers), social influences (helping students thrive socially and provide non-academic support), and cultural influences (encouraging diversity).

This dimension also focuses on the quality of relationships in the master's program – most notably *faculty* and *peer* relationships. Master's students engage differently than undergraduate in the supportive campus environment dimension. For undergraduates, the quality of relationships with administrators is a key component of engagement but is absent from the supportive campus environment dimension for master's students. It is likely that administrators (such as staff in residential life, student activities, career services, and athletic coaches) play a much larger role in the life of an undergraduate student given the types of activities they participate in as well as the residential nature of traditional undergraduate institutions. Master's students might simply not utilize campus services to the same extent that undergraduate students do and therefore have less opportunity or need to establish ongoing, quality relationships with staff. While Brandes (2006) calls for the expansion of traditional undergraduate student services to graduate students, the findings suggest that these services may be best situated in the academic program.

The extent to which master's programs encourage contact among students from different socioeconomic, sexual orientation, and racial backgrounds is part of a supportive campus environment for master's students but not for undergraduate students. For master's students, difference might be just one aspect of the quality of their peer relationships, whereas with undergraduate students it is a distinct aspect reflected in a separate dimension of engagement about diversity. As discussed later, a diversity dimension did emerge for master's students as well, though it is more narrowly focused than the diversity dimension for undergraduate student engagement.

There is some evidence that peer involvement may contribute to engagement above and beyond quality of relationships as is measured in the supportive campus environment dimension.

As described in chapter four, when a more expanded eight-factor solution was conducted in the factor analysis, the item which asked the extent to which master's students worked with their peers outside of class loaded very highly on a specific factor that may actually signify a separate dimension regarding peers. Caulfield (2010) asked 91 master's students to identify learning tasks on a scale from least engaging to most engaging and found that peer involvement was a positive predictor of student engagement. It makes sense that peer *relationships* around academic activities factor into engagement for master's students and, as will be discussed later in this chapter, this is particularly true for business and education students. The extent of peer influence on engagement is worth exploring in future instrument design.

Intellectual Engagement and Academic Preparation

Intellectual engagement emerged as the second strongest dimension of master's student engagement. This dimension is about the extent to which courses emphasized synthesizing ideas, making judgments about the value of information, applying theoretical constructs to real life problems, and analyzing in depth the basic elements of an idea. It is not surprising that a dimension related to scholarly endeavors emerged as a unique dimension of master's engagement. Master's students choose to enroll in a program to specialize in a particular field of study, so they are likely to have a more focused intellectual experience. What is surprising, however, is *how* this particular dimension of master's student engagement differs from undergraduate student engagement. In undergraduate engagement, academic engagement includes both intellectual engagement *and* the time spent studying and preparing for class. This is not true for master's students, as the intellectual component of the program and how much time is spent preparing for class are separate dimensions of engagement.

The level of academic preparation – which includes spending time reading assigned textbooks, writing papers of significant length, doing homework, or working hard to meet faculty member's expectations - is a distinct dimension of engagement for master's students. As indicated above, unlike undergraduate engagement where preparation is part of a single dimension of academic challenge, for master's students this dimension is unique. This might mean that for master's students, preparing for class is an activity that requires time but it might not be considered as a key part of their intellectual experience. Yet one would think that writing a paper of 20 pages or more would require the skills of synthesizing information, incorporating theory and making judgments about the value of information. However, it is also intuitively reasonable that the intellectual component of the curriculum and how hard one works is not the same thing. These two academic dimensions were slightly positively correlated with one another, though.

The concept of time on task is a core aspect of engagement, with research showing that the more time students spend on an activity (e.g., preparing for class), the greater their engagement and learning (Kuh, 2009; Pascarella & Terenzini, 1991). Astin's (1984) I-E-O model provides some evidence to support the finding of two distinct academic dimensions for master's students. As Astin (1984) outlines, the academic environment includes actions taken by the student (amount of time studying, motivation to study) as well as other things over which institutions have some programmatic control (curriculum and classroom experiences).

Student-Faculty Interaction

Engagement research provides evidence of a positive relationship between student-faculty interaction and a broad range of student educational outcomes, including academic achievement, intellectual growth, and academic satisfaction (Astin, 1977, 1993; Kuh & Hu,

2001). For master's students, the student-faculty interaction (SFI) dimension includes the extent to which students talked with faculty about career plans and ideas from class, or inquired about a particular class assignment outside of class. This dimension is also about how much master's students work directly with faculty on projects outside of class (such as a committee or student life activities) or on a research project. This is the one dimension that is nearly identical to the undergraduate student-faculty interaction dimension. The notable exception is that for undergraduate students, receiving prompt feedback from faculty is a part of engagement while for master's students it is not. In essence, this dimension supports the notion that faculty play a key role in master's engagement. For doctoral students, the activities associated with student-faculty engagement include research, teaching, and interactions with the advisor. The literature does not identify what specific activities contribute to positive student-faculty interactions for master's students as whole, so it is unclear if the items in the student-faculty interaction engagement dimension accurately capture the breadth of this dimension. However, there are some notable differences in the engagement patterns for some subgroups of master's students in this dimension, particularly by discipline and enrollment status, which is discussed later in this chapter.

Items within the student-faculty interaction dimension also might not apply to students from every academic discipline. For example, the item that asks the extent to which students participate in research activities with faculty might not contribute to the SFI engagement dimension for those disciplines that have little or no research component. In fact, in this study upon examination of the specific item that asks about research, business students reported that they worked with a faculty member significantly less than students in education and arts and

sciences. As is discussed in more depth later in this chapter, this makes sense, as original research is not a core part of the curriculum for business students.

Experiences of Campus Diversity

The experiences of campus diversity (ECD) dimension is unique to the MSSE, and was also the weakest of the five factors. This dimension regards the types of conversations students have with people who are different from them in terms of race, ethnicity, religious or political beliefs, or values. It also asks students the extent to which they have included diverse perspectives in their course discussions or writing assignments. Items within the ECD benchmark focused on conversations with other students from different backgrounds or belief systems and how students incorporated diverse viewpoints into their coursework. This dimension is different than the NSSE enriching educational experiences (EEE) benchmark in that the sole focus of the DCE dimension is diversity, while the undergraduate EEE dimension also includes participation in student activities or community organizations as activities that promote engagement. A number of concerns arise when examining the items in this dimension in light of what the literature says about the construct of diversity. First, the content of two of the items was potentially problematic as the items asked students to report on "serious" conversations they have had with other students. Porter (2009) asks "how does a student distinguish between "serious" and "frivolous" conversations? And what is a "conversation?" A chat in the bathroom…?" (p.53). Since these two items refer to "serious conversations," whereas the other items do not, they might be tapping some sort of proclivity to engage in serious conversations rather than some form of actual engagement. Second, the MSSE asks about diverse relationships and the extent to which a program encourages contact among students from different backgrounds, but there is no item that asks specifically about the course curriculum. Extending

undergraduate diversity research to master's students would clearly require that specific interactions or opportunities for students to engage difference are identified *a priori.*

If the MSSE is to be used to measure a diversity dimension in master's education, it will be essential to write items that capture a more complete student experience in this realm. As it stands, the three items within this dimension do not represent the diversity construct well. The MSSE could be enhanced by the addition of items that ask students about the extent to which their coursework requires diverse perspectives, their participation in specific activities that promote learning about difference, and their discussions and interactions around topics of race and other difference. Despite the questionable breadth of this dimension, findings might be useful to help inform curricular and programmatic changes, particularly if it is found that students are not incorporating diverse perspectives into their work or having conversations with students who are different from them. Of course, interpretations of such scores should be made in context of the institution (e.g., student body diversity).

What emerges from this study is that master's student engagement is different than undergraduate student engagement in a number of important ways. The two strongest dimensions – supportive environment and intellectual engagement –paint a picture of a more focused program and academic-centered experience for master's students. These findings emphasize the importance of both the social and academic realms of a master's program, although the findings do not support Tinto's (1993) assertion that graduate students put a heavier focus on the academic realm. As is discussed later, for professional students in business and education, it is the environment that influences engagement more so than the intellectual or academic realm.

Undergraduate engagement, as measured by the National Survey of Student Engagement (NSSE), differentiates peer relationships and collaborative learning as a distinct dimension

(called active and collaborative learning), while peer relationships are part of the supportive environment for master's students. Most notable was the emergence of a singular dimension for intellectual engagement for master's students, where the intellectual experience is captured in a broader academic challenge dimension for undergraduate students, which also includes preparation for class. For master's students, how much time spent preparing for class is a separate dimension from the intellectual experience. The student-faculty interaction (SFI) dimension, together with the intellectual engagement dimension, supports the emerging portrait of a strong academic component for master's student engagement. It should be noted that the SFI dimension is also a primary component of undergraduate engagement, suggesting that interactions with faculty are a universal and important part of overall student engagement. Finally, for master's students, experiences of diversity are about engaging their peers in conversations across difference and in integrating different perspectives in their coursework. This is unlike undergraduate engagement, where the dimension of diversity captures a more robust student experience that includes co-curricular campus experiences, internships, and community involvement.

Construct Validity

In addition to seeking evidence of the internal structure of the MSSE, research question one also sought to provide evidence of the convergent construct validity of the MSSE. That is, to what extent did the MSSE engagement dimensions correlate with theoretically relevant outcomes for master's students? A number of predictive validity studies for the NSSE provide evidence that links the various NSSE measures of good practices to student self-reported outcomes in both intellectual and personal development that are assessed by 16 items on the NSSE instrument itself (Kuh, 2002; Pascarella, Seifert, & Blaich, 2011). Bowman (2009), however, points out that

there is little to no overlap between self-reported gains and gains that are evidenced by more objective instruments or direct assessment. Therefore it is questionable to use self-reported outcomes as a measure for good practices. Serious problems exist with the internal validity of any findings in which self-reported gains are taken to be a learning outcome of the educationally effective practices that the NSSE targets (Pascarella, et. al, 2011). The findings showed that while self-reported grade point average was not related to any dimension of engagement, there were quite a few positive correlations between the dimensions and the self-reported outcomes. These outcomes include thinking critically and analytically, writing clearly and effectively, and developing research skills, among others.

Overall, the validity evidence for the MSSE is somewhat mixed. Five dimensions emerged, but were not all strong. A number of different areas of engagement emerged for master's students as compared to the NSSE benchmarks for undergraduate student engagement. Still, while this exploratory suggests at least five dimensions of engagement for master's students, three of these dimensions seem to define master's engagement as strongly associated with the program environment and intellectual life. However, the reliabilities for the five dimensions were largely acceptable. A number of positive correlations between the engagement dimensions and self-reported outcomes emerged, but there was no relationship between self-reported grade point average and engagement.

In the next section, I will discuss the results of research question two. It is worth noting that the findings were contingent upon the validity of the measure and are therefore limited by the considerations outlined above. The second research question asked how the dimensions of engagement relate to the characteristics of academic discipline, enrollment status, gender, age, marital status, children, and international student status.

Differences by Academic and Personal Characteristics

The results of the second research question revealed some interesting – and perhaps disappointing – differences in how master's students engage by academic discipline, enrollment status, and other personal characteristics. Specifically, the study sought to find out how *who* master's students are is related to *how* they engage with their master's program, looking at the variables of academic discipline, age, gender, marital status, children, international student status, and enrollment status. What emerged from the findings is that master's students are not a homogeneous group; rather, there are subgroups within master's education that engage differently. As is discussed later in this chapter, this study has some significant limitations and therefore the findings for research question two should be interpreted with caution. There were, however, some findings that were plausible for master's student engagement. Of the characteristics considered in this study, academic discipline (arts and sciences, business, or education) was significantly related to each of the MSSE engagement dimensions. The next section will discuss the differences in the engagement patterns of master's students in arts and sciences, business, and education.

Differences in Academic Discipline

Recall that the MSSE dimensions reflect engagement as academic-focused (intellectual engagement, student-faculty interaction, and preparation) as well as environment-focused (supportive environment, experiences with diversity). Prior to interpreting the results by academic discipline, it is worth re-stating that within master's education, there is no "one-size fits all" organizational structure within a university to support master's students, so it is likely that master's programs in different disciplines provide a varying level of support (and services) for students. Further, students in business and education may experience more homogeneity

within their discipline and organizational structure as compared to students in arts and sciences, where students are enrolled in a wide diversity of academic programs ranging from the humanities to the natural sciences. This might be due to the nature of how these programs are organized, with master's programs in arts and sciences being more department-focused and likely less focused on a shared experience within the discipline like business and education programs are. The lack of a common academic thread between many disciplines in arts and sciences might impact how support structures are provided and the extent to which students connect with one another across disciplines. Nonetheless, there are striking differences in how students engage by academic discipline.

Several key findings emerge by academic discipline. Master's students in business and education are more likely to experience a supportive campus environment than are students in arts and sciences. Arts and sciences students have a more rigorous intellectual experience and engagement with faculty than do students in education or business. With regard to academic preparation, arts and science students spend more time preparing for class than education and business students. Finally, students in education were more likely to have conversations with students who were different than they and more often incorporated diverse viewpoints into their coursework than did business or arts and sciences students. In the next section I will discuss the possible reasons why these differences emerged within each of the academic disciplines.

Business

The evolution of the master's degree, with a shift away from the traditional arts and sciences model to a professional model that is more career-oriented and practice-oriented, brings the university much closer to the corporate world (Glazer, 1986; Glazer-Raymo, 2005). For master's students in business, particularly those enrolled in Master of Business Administration

(MBA) programs, networking is part of the ethos of the discipline. Much like in the business world, master's programs encourage networking and provide an environment where this is promoted. In some ways, who you meet in your business program – peers, faculty, guest lecturers – may be more critical to expected outcomes of the program (such as finding a good internship or job) than other aspects of the program, including the curriculum. An emphasis on a strong social network, attention to quality relationships, the sense that the program supports students in helping them succeed both academically, non-academically, and in the job search appears to accurately capture the important elements of a student's experience in a business master's program.

Business students had a less intellectual academic experience and had fewer faculty interactions than their peers in arts and sciences. Given the strong dimension of supportive environment for business students, this might mean that the intellectual aspects of the curriculum and relationships with faculty are a means to an end, with the end being a good job and a strong network. Coursework may not be viewed as an intellectual activity, but as a way to bridge their practical work experience with the coursework. The MBA curriculum also provides an introduction to a wide range of business practices, not in-depth specialization. Many MBA students work for several years before returning to school, so their work experience enables them to draw upon their work experience and to integrate their learning in the classroom. If we look at this through the lens of both the supportive campus environment and intellectual engagement dimensions, *who you know* may be more important to engagement than how you experience the classroom.

Relationships with faculty might look different in business than in other disciplines. As described above, quality relationships with faculty are part of the supportive campus

environment for business students, but faculty interactions are not significant in the student-faculty interaction dimension. As is discussed earlier in this chapter, this might be because one of the items in the engagement dimension asks about the extent to which a student has worked with faculty on a research project, and business students might simply not have the opportunity to conduct original research as a part of their program.

Business students are also less inclined to have conversations with other students who are different from them or integrate diverse perspectives in their coursework than are students in the discipline of education (the campus diversity experiences dimension). However, it is important to note that part of the supportive campus environment dimension involves encouraging contact among students from different backgrounds. It might be that diversity is a part of supportive campus environment for business students, not a separate dimension. Another plausible explanation might be that the curriculum does not emphasize diversity and therefore students do not engage in conversations about diversity with their peers inside or outside of class.

A contributing factor to engagement in business education is the cohort model, which is common in many MBA programs. In a cohort system, first year students take all of their core classes together with the same group of students. Classes are pre-scheduled, so there is no need to seek out a faculty advisor to assist with course selection. Students experience a strong social connection through the cohort as well, which contributes to overall engagement.

The findings might perpetuate the stereotype that business school is less rigorous than other disciplines, yet the question must be asked: is it a problem that business students have a less intellectual academic experience than their peers in arts and sciences? I contend that it is not, as the purpose and outcomes of business education are different than those of master's programs

in arts and sciences. Business students may want or expect a practical experience. In fact, they may be drawn to their master's program because it is more practice-based.

Education

While there are some similarities between the patterns of master's student engagement in the disciplines of business and education, the reasons for these engagement patterns are somewhat different. Master's students in education experience a more supportive campus environment than do their peers in arts and sciences but, much like business students, students in education are less intellectually engaged and have fewer interactions with faculty than those in arts and sciences. While the thrust of a supportive environment for business students is about networking for future success, for education students it likely is about establishing supportive and caring relationships to help them thrive while in the program. There is an ethos of caring in the profession of education that permeates the student experience. Further, students in education are more likely to talk about diversity and incorporate diverse experiences than students in arts and sciences and business. This might be because the field of education tends to emphasize difference and diversity in the curriculum, or might attract students for whom this is an important value in their educational program.

While the finding that education students are less intellectually engaged than their arts and sciences counterparts is somewhat surprising, there might be a plausible explanation for this. Education master's degrees are often terminal and largely professional in nature, so students know what they want to accomplish in the program and their priority is to gain practical experience to help them in their chosen profession. The sub-disciplines within education, such as teacher education, school or college administration, and counseling typically have an experiential component as part of the curriculum or as core elements of the program. This might include an

assistantship or internship, student teaching, or clinical component. This focus on practical application of knowledge is important to student learning in the discipline of education, and master's students in education may be therefore more inclined to see their experiential component as more engaging than the course curriculum. This explanation might also account for why master's students in education engage less with faculty and spend less time preparing for class. With regard to faculty interactions, education students might not have the opportunity to work with faculty members on a research project, nor is it generally an expectation of students within many disciplines within education. Therefore, this dimension might not accurately reflect what student-faculty interaction looks like in education.

Arts and Sciences

Interestingly, while arts and sciences students experience a less supportive environment than their business or education peers, they have more interaction with faculty members. Perhaps a strong contributor to their "supportive environment" is the faculty, given the small number of students in some of the programs. Arts and sciences students also experience academic engagement as more intellectually rigorous than education or business students, and arts and science students spend more time preparing for class than do their peers in applied fields. An intellectual ethos permeates the arts and sciences disciplines, with a focus on scholarship that encourages intellectual engagement. For arts and sciences students, the curriculum is not a means to an end but a primary intellectual experience. More so than their counterparts in business and education, arts and sciences master's students likely enjoy learning for the sake of learning. Further, as previously discussed in the literature review, master's programs often provide a pipeline for master's students to doctoral programs, so interactions with faculty members play a more critical role in the outcomes for a master's student in arts and sciences. While the doctoral

student experience is different than the master's student experience, research shows that for doctoral students, faculty relationships are more important than peer relationships in academic success (Golde, 2005).

Arts and sciences master's students appear to be more similar to doctoral students than they are to master's students in business or education. Research and teaching are often components of a master's program, as they are for doctoral programs, and the focus is not as much on practical experience but on teaching and learning. Faculty members are the primary agents of academic integration for doctoral students, so it is reasonable to conclude that this is also true for master's students.

These findings begin to paint a portrait of the master's student by discipline, with ostensibly arts and sciences students more engaged in the academic realm of their master's program than their peers in business or education. For undergraduate students, Astin (1996) found that academic involvement is the most important type of involvement for students. The findings show that this is not necessarily the case with master's students from business or education. While some of this might be due to the nature of the curriculum, it seems that the idea of organizing complex relationships and making judgments about what information is valuable should be core components of master's programs in all three disciplines. That said this study did not find an *absence* of intellectual life in education and business. Rather, the findings showed that students in business and education were *less engaged* in the intellectual realm than their arts and sciences counterparts. Still, faculty might find these findings troubling and further investigation of this might be warranted.

Students in business and education, meanwhile, more often engage with their broader program environment than do arts and sciences students. Exploring this bifurcated student experience by academic discipline provides an opportunity for future engagement research.

Differences in Enrollment Status, International Status, and Age

In addition to academic discipline, differences were also found in the characteristics of enrollment status, international student status, and age in some dimensions of engagement. However, the differences were not across all dimensions of engagement as they were for academic discipline.

Enrollment Status

It is not surprising that the findings showed that the engagement patterns for part-time students differed from the engagement patterns of full-time students in four of the five engagement dimensions. Astin (1984) points out that the reason part-time students may be less engaged than full-time students is simply because they *are* part-time, and therefore invest less time in particular activities. Pike (2003) found that full-time students scored higher on the NSSE benchmark dimensions, likely because they have more opportunity to get involved in educationally purposeful activities. Part-time master's students take fewer courses and therefore might spend less time preparing than full-time students. Part-time students often have work and family responsibilities and therefore might not seek the same experiences from their education as traditional college students (NSSE, 2010). This means that they don't have the time to participate in campus activities that help promote faculty or peer interactions, which are two core tenets of engagement theory.

The literature on community college student engagement might help inform the research on part-time students, as approximately 60% of community college students are part-time

(Veenstra, 2010). For community college students, engagement begins in the classroom and the classroom experience might be the only real dimension of engagement for a community college student. Interestingly, in this study there was no difference between full-time students and part-time students with regard to the intellectual environment or supportive learning environment. Part-time students, however, spent less time preparing for class and reported having fewer conversations with students about race or difference. Part-time students also spent less time working with faculty members outside of class. This is a troubling finding, as research shows that the more students interact with faculty, the more likely they are to learn (Pascarella & Terenzini, 1991). For undergraduate students, course-related interactions with faculty appear to be positively related with student engagement (Umbach &Wawrzynski, 2005). Given the large number of part-time students enrolled in master's programs, it is imperative for faculty who teach in master's programs to find ways to engage part-time students within the time constraints of the students. In addition, it is important to further explore the theory around the part-time student experience to inform future study of master's engagement.

International Student Status

The findings for international students are intriguing, both for what was found and for what was not found with regard to engagement patterns. As was expected, international students spent more time preparing for class as compared to their domestic student counterparts. This is conceivable as international students may need the extra time to compensate for the different practices and expectations of the American higher education system and to use English as a non-native language. Further, faculty members are likely perceived as authority figures for many international students given the student/faculty roles in many countries, even more so than for domestic students. It therefore is not a surprise that international graduate students spend more time meeting the expectations of faculty. It was interesting that international students were not

significantly different than domestic students with regard to the campus diversity experiences dimension. One might expect that by virtue of being in a different country with people who might be different in their religious beliefs, value systems, political beliefs, or race or ethnicity, international students would engage in conversations about difference and incorporate these perspectives into their coursework, but this was not the finding. It might be that international students' own cultural norms around these types of conversations might inhibit them from engaging in these discussions, or that they might not have established the kinds of relationships that foster these discussions.

Age

The characteristic of age was significantly related to two engagement dimensions, level of academic preparation and campus diversity experiences. With regard to academic preparation, older master's students prepare for class more than younger students. This might suggest that older students are either more focused than their younger counterparts or that the time gap between their undergraduate experience and master's program is such that they are out of practice and need more time to prepare for their studies. Knowles (1980) posits that adults learn differently as they mature, becoming more self-directed and focused on *why* they need to know something rather than on rote learning. Next, older students appear to engage in fewer conversations about race or difference than their younger counterparts. Some of this might be due to societal changes in diversity over time, with younger generations of students living, working, and studying in a more diverse environment than their older peers. Or, it might simply be that engaging with issues of diversity is not a priority or they might not be in an identity-exploration frame of mind while engaged in their academic pursuits.

Other Variables of Interest

In this study the specific variables of enrollment status, age, marital status, children status, international student status, academic discipline, and gender were selected because they are of interest to practitioners who work with master's students (Brandes & O'Dair, 2008). Yet without research to guide them, practitioners have used their own experience (and the experience of their colleagues) to develop programs and make policies to support master's students. This study, guided by engagement theory and prior research on engagement practices, sought to provide evidence for how these personal and academic characteristics were related to levels of engagement. As discussed above, academic discipline, enrollment status, international student status, and age were all significantly related to some of the MSSE engagement dimensions. However, gender, marital status, and children status were not significantly related to any of the dimensions. This could be interpreted to mean that there is no relationship between these characteristics and engagement; it also is possible that the instrument does not adequately measure engagement for these three characteristics. Therefore, it is hard to make conclusions or recommendations for how gender, marital status, or children status relate to engagement. Similarly, the earlier findings, though plausible, should be taken with caution.

General Discussion of Master's Engagement

This study was an initial attempt to further understand the master's student experience by gathering evidence about the learning and social environment, relationships with peers and faculty, and behaviors that further student learning. As indicated earlier, it is important to exercise caution while interpreting these results, as this was an exploratory study at one institution. With this caveat in mind, the results reveal that master's engagement is different than undergraduate engagement, and therefore applying undergraduate engagement theory to master's

students does not capture the uniqueness of the master's student experience. The findings from this study suggest that there might be *three,* not five, dimensions of engagement for master's students. The two strongest engagement dimensions for master's students are a supportive environment and an intellectually-engaging environment, with a third (but not as strong) dimension of student-faculty interaction. This three-dimension construct might more accurately describe the master's student experience. Even accounting for difference in discipline, the findings provide a starting point from which to explore a more nuanced picture of what a supportive and intellectually engaging environment looks like for master's students. In the case of business and education students, the findings show they are less intellectually engaged than their arts and sciences peers. This is certainly a concern if the lack of intellectual engagement means that students are not using what they learn to apply new concepts and ideas within their chosen profession. If the goal of professional education is to gain practical skills to advance in a given profession, however, then the environment in which students learn may contribute more to their engagement with the program than the intellectual atmosphere in the program.

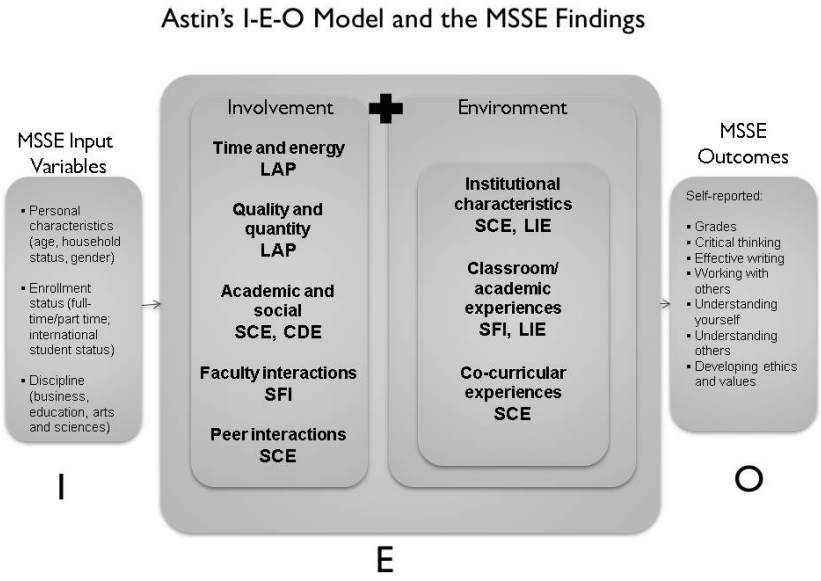
The findings reveal some good news for part-time students with regard to the two strongest areas of engagement for master's students. Part-time students are as engaged as their full-time peers in both the supportive campus environment and in the intellectual realm of the program. However, they have fewer interactions with faculty and prepare less than their full-time peers. These are likely both due to time constraints, so efforts must be made to ensure that part-time students can engage with their program in the kinds of meaningful ways that their full-time peers do.

As previously described, Astin's (1984) Input-Environment-Output (I-E-O) model was a guiding framework for this study. The I-E-O model examines the interaction of the personal

characteristics, environment, and outcomes of a student's educational experience. Figure 3 illustrates the findings from the MSSE within the I-E-O model.

Figure 3

Astin's Input-Environment-Output Model and the MSSE Findings



As Figure 3 shows, the five MSSE engagement dimensions appear to capture the environmental components of the model fairly well. The MSSE outcomes were also related to a number of the engagement dimensions.

Limitations

This study has a number of limitations. A threat to external validity is that the study used a convenience sample at one institution - a religiously-affiliated, research-intensive university in the Northeast. The study is therefore unable to generalize to master's students elsewhere, as students at this institution may not be typical of master's students at other institutions. For instance, students at a religiously-affiliated institution might be more (or less) engaged than

students at a public research university because of the ethos of the institution, one which may attract students who are more inclined to focus on mission and community. Also, unlike some institutions which provide housing for master's students, the host institution did not house graduate students on campus, something which may impact master's students' engagement patterns, particularly as they relate to a supportive environment. While it is unknown the extent to which these findings will pertain to other master's student populations, despite this being a single institution study the host site is a research University with fairly typical students and curricula.

Another limitation was that the sample drawn from the host institution did not represent the overall population at the institution for all variables. Within the variable academic discipline, business students were under-represented in the sample and education students were over-represented, which may have impacted the factors that emerged from the factor analysis. With regard to enrollment status, part-time students were over-represented in the sample. Therefore, the data that fed into the factor analysis was weighted more heavily with part-time students and education students, so caution should be exercised in interpreting the results. An additional limitation is that the study cannot make inferences about master's students in general as only the disciplines of arts and sciences, business, and education were included in the study. The final limitation regards the instrument that was used. The MSSE, while closely adapted from a national instrument, was previously untested with master's students. Therefore, the factors that emerged from the instrument were based on a theory of undergraduate engagement. While the MSSE related to a number of self-reported outcomes, it did not relate to self-reported grade point average.

Recommendations for Policy, Practice, and Future Research

This study was an initial attempt to investigate the construct of student engagement within master's education using an adapted version of a national instrument. While the limitations are noteworthy, the findings show some promise for future exploration for what activities and relationships comprise engagement for master's students. With further development and validation, the MSSE (or versions of the MSSE) can provide educators with indirect evidence of student engagement and with actionable data for making programmatic improvements. Below are recommendations for future research.

Differentiate Engagement for Professional Schools and Arts and Sciences

Future research should examine differences in the internal structure of the MSSE by broad academic area. The disciplines of arts and sciences, business, and education were selected for this study because a) they are the top three disciplines in master's education and b) the host institution had master's programs in each of these disciplines. While the results of this study cannot be generalized to the broader master's student population, the findings show some clear differences in the way that professional students (in business and education) engage as compared to their arts and sciences peers. The items in the diversity dimension, in particular, must be further developed. The emergence of a diversity dimension might have been in part because of two similarly worded items or because of the influence of master's students in education engaging strongly in this dimension. It is not recommended that the MSSE be utilized in its current form to measure discipline-specific engagement. Rather, the instrument must be adapted to better capture the student experience in professional programs and in arts and sciences program. In order to make these adaptations, the instrument must be further developed and tested.

Further Develop and Test the Instrument

A first step is to further investigate the MSSE instrument itself. As the reader will recall, the MSSE was adapted, nearly identically, from the LSSSE and NSSE, with only minor changes made to reflect the master's student context. As such, it relied on a framework that has not been developed with master's students, or their academic experience, in mind. It was in effect retrofitted to a master's student context. Therefore, the items on the instrument may not accurately reflect the breadth or depth of their experience as a master's student and what it means to be engaged. Further qualitative and quantitative research is needed to validate the instrument and identify the specific activities that represent engagement for master's students.

One recommendation is to use focus groups as a qualitative method to collect data on the master's student experience and to further test the validity of the MSSE instrument. Focus groups, comprised of master's students from separate disciplines, part-time and full-time status, or other characteristics, may be helpful in delving in to the specifics of the master's experience. It would also be possible focus on a particular student experience (e.g. being a part-time student). Focus groups could also engage students in an open-ended discussion about their master's program, what their perceptions are about the program and what contributes to their experience, both academically and socially. The data collected from student focus groups can help a researcher identify the practices that are meaningful to a master's student, something that cannot be done with just a survey instrument. Results from these homogeneous groups could be compared with each other and themes identified for item development.

A second way that focus groups should be used is to help examine the content validity of the instrument. The findings from this initial study on master's student engagement should be shared with the same groups of students mentioned above (unique by discipline, enrollment

status). Do the MSSE questions accurately reflect the master's student experience in the student's specific discipline? Is the instrument well designed and does it make sense? What is missing? Information from either, or both, of these focus groups may yield valuable information for the development of items on any subsequent instrument. It may be that a core set of items can be used to measure general engagement dimensions within master's programs while allowing for discipline-specific items to be developed with a particular discipline in mind. Exploring what unique student experiences contribute to engagement by academic discipline can help guide the creation of an instrument that is more attuned to a specific academic discipline. Given the sheer diversity and number of disciplines within master's education, it is suggested that discipline-specific items be developed at the broadest possible level (for example education, business, nursing), rather than at a program level (such as accounting, finance, or management as a subset of business) within the broad discipline. For example, the items on the MSSE that capture peer involvement (an identified dimension for business students, for example) may not adequately capture the nuances of working with peers. How many hours do students spend working with peers inside and outside of class? To what extent do peers help them succeed academically? Or help them succeed socially? To what extent does the program promote working with peers? These questions should be added to future iterations of the instrument.

If, as the findings suggest, GPA is not an adequate outcome measure for master's students, other outcome items should be included. These outcomes might include plans for future graduate work, plans to seek a job in their discipline, plans to seek a job outside of their discipline, or intent to seek a promotion or better opportunity within their current organization. In addition, an item that asks students if their master's program has prepared them for their plans after graduation should also be included.

Further Explore the Full-time and Part-time Student Experience

Master's program administrators and faculty must pay particular attention to the distinct needs of part-time and full-time students. Part-time students may be at a disadvantage when it comes to building meaningful relationships with both faculty and peers, so program administrators would do well to pay attention to this and to work within the considerable time constraints of the students to promote these interactions. One recommendation is to include high impact practices into the academic experience. Many of these practices actively engage learners within the classroom and with faculty, including writing-intensive courses, collaborative assignments, small seminars, and capstone projects. Incorporating these core academic experiences within the curriculum benefits those students who do not have the time to engage with faculty outside of the classroom.

A second recommendation is to include more items on the MSSE that ask students to report on how they spend their time outside of school. If part-time students have less time to devote to activities that help them engage, what are those activities? Items that focus on the number of hours students spend working, providing childcare or dependent care, or community activities, and the number of jobs (if more than one) they hold, can help provide a more accurate picture of the time constraints that part-time students face. It is also recommended that the item which asks students how long they have been in their program be used to further explore the part-time student experience.

Conduct Item-Level Analysis

Item-level analysis of the MSSE results can provide data to help faculty and administrators identify areas for programmatic and curricular improvement, set annual goals, or to simply get to know their students more. The current MSSE could be used this way, much like

the LSSSE uses item-level data to compare institutions and to compare change over time within a single institution and do so in an efficient fashion. The MSSE item level responses could be similarly informative for master's program administrators and faculty who seek information on specific practices.

Data on satisfaction and student services should be used and analyzed in future adaptations of the MSSE. There are a number of items on the MSSE which were not used in the factor analysis or outcomes correlation. Given the inconclusive findings of the relationship between self-reported outcome measures and the dimensions, it may be more helpful (and aligned with the practices of the LSSSE) to look at more concrete item-level responses rather than to form factors. These items pertain to how satisfied a student is in the program and whether they would choose to enroll again if they had the choice. These questions also include information on student debt, an important area of concern for students and practitioners alike.

Use Item-level Data for Accountability

The item-level findings from the MSSE could serve as one method by which programs gather evidence for internal and external accountability. Accreditation bodies increasingly seek evidence that programs and services impact student learning, and these organizations help hold institutions accountable. However, as Bresciani (2004) notes, "the prevailing reality is that the co-curricular side has a history of using anecdotal methods and indirect sources of evidence" to gauge student learning (p.2). No one method will be sufficient to understand the student experience, and while the MSSE itself is an indirect measure, the results can help identify areas of concern for more targeted direct measures. As discussed in the literature review, the standards for graduate students developed by the Council for the Advancement of Standards (CAS) are explicit in what is required to assess the graduate student experience. Overall satisfaction with

services and needs assessment are necessary components of a regular assessment and evaluation along with learning measures (CAS, 2008). The finding that grade point average is not related to engagement means that GPA should not be used as an indicator for learning in master's education, as there is little variability within grades for master's students.

Expand Sites for Future Studies

As suggested earlier, the structure of the academic program and the support structures within it can either facilitate or inhibit student engagement. Therefore, replicating this study with a wider range of institutions and disciplines may yield data that can provide a better understanding of the student experience within a discipline. Ideally, it is recommended that subsequent studies be situated both at the current study institution as well as other institutions across the spectrum of master's education (including research intensive institutions as well as master's-only graduate institutions). Expanding the population from which the sample is drawn may also reduce some of the barriers encountered in generalizing the findings for this study. As it stands, it would be difficult to draw conclusions for master's students in a specific master's discipline (such as social work) from a sample that did not include students from that discipline.

Conclusion

The overarching question that framed this study asked how and to what extent master's students are engaged in educationally purposeful activities that lead to positive outcomes. Ultimately, the question that must be asked is why do we *care* how and why master's students engage? The dearth of literature on the master's student experience is a chasm in an otherwise robust literature on graduate education. A great deal of research has been conducted on doctoral student socialization, retention, and overall experience with the academic discipline, outlining problems and identifying recommendations to improve the doctoral student experience. In

contrast, the literature offers very little evidence to help improve the master's student experience. Moreover, the construct of undergraduate student engagement and the measurement of student engagement are both well developed in the literature. This study was an initial attempt to help fill the gap within the literature on the master's student experience within the literature on engagement. This study advanced the understanding of engagement practices for master's students and the results support the need for further research on master's student engagement.

While the MSSE instrument revealed five dimensions of engagement for master's students, upon further examination there appears to be three, not five, dimensions that encompass the master's student experience. Yet the evidence of a relationship between the MSSE dimensions and self-reported outcomes was inconclusive. While the MSSE requires further research to identify dimensions that may better reflect a wider range of engagement behaviors in master's students, evidence gathered from this study provided a strong starting point for future research. For one, the findings suggest that master's students and undergraduate students engage somewhat differently in their educational experience. The findings of this study also revealed that enrollment status is something that educators should take note of, as part-time students engage differently than full-time students in a number of ways.

One of the primary roles of student affairs administrators is to understand student issues and to advocate for the best interests of students. This study helps practitioners understand how master's students engage, and therefore can help them serve as consultants to academic schools and programs to improve the master's student experience.

This research contributes to a better understanding of the master's student experience through the framework of engagement and helps provide a starting point for future studies in the

field. While there are many lines of inquiry that practitioners can pursue using the data collected in this study, it is clear that student engagement is a promising area for future research.

References

Alexander, J. & Maher, M. (2008). Transitional needs of master's students. In K. Tokuno (Ed.), *Graduate students in transition: Assisting students through the first year,* 9-26. Columbia, S.C.: University of South Carolina.

American College Personnel Association. (1994). *The student learning imperative: Implications for student affairs*. Alexandria, VA: ACPA.

Association of American Universities. (1935). Problems of the master's degree: Committee on problems relating to the master's degree. *Journal of Proceedings and Addresses of the Thirty-Seventh Annual Conference of the Association of American Universities, 37*, 32-37.

Anderson, M. S. & Swazey, J. P. (1998). Reflections on the graduate student experience: An overview. *New Directions for Higher Education*, *101*, 3–13.

Astin, A. W. (1975). *Preventing students from dropping out.* San Francisco: Jossey-Bass.

Astin, A. (1977). Four critical years: Effects of college on beliefs, attitudes, and knowledge. *San Francisco, CA: Jossey-Bass.*

Astin, A.W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25,* 297-307.

Astin, A.W. (1993a). *Assessment for excellence.* Phoenix, Arizona: Oryx Press.

Astin, A.W. (1993b). *What matters in college? Four critical years revisited*. San Francisco: Jossey Bass.

Astin, A. W. (1999). Student involvement: A developmental theory for higher education. *Journal of College Student Development*, *40*, 518–529.

Babbie, E. (1990). *Survey research methods* (2nd ed). Belmont, CA: Wadsworth.

Baird, L. L (1990). The melancholy of anatomy: The personal and professional development of graduate and professional school students. In J. C. Smart (ed.), *Higher education: Handbook of theory and research.* New York: Agathon Press.

Baird, L. L. (1993). Using research and theoretical models of graduate student progress. In Baird, L. L. (Ed.). *Increasing graduate student retention and degree attainment* (pp.3-12). (New Directions for Student Services, No. 80). San Francisco, CA: Jossey-Bass.

Banta, T. W. (2002). Characteristics of effective outcomes assessment: Foundations and examples. In T. W. Banta (Ed.), *Building a scholarship of assessment* (pp. 261- 283). San Francisco, CA: Jossey-Bass.

Bargar, R.R., & Mayo-Chamberlain, J. (1983). Advisor and advisee relationships in doctoral education. *The Journal of Higher Education, 54*(4*),* pp.407-432.

Bean, J. P. & Metzner, B. S. (1985). A conceptual model of nontraditional undergraduate student attrition. *Review of Educational Research, 55*(4), 485-540.

Bell, N. (2011). *Graduate enrollment and degrees: 2000 to 2010*. Washington, DC: Council of Graduate Schools.

Bell, N.E. and Allum, J.R. (2012). *Enrollment and Degrees in Professional Science Master's (PSM) Programs: 2011*. Washington, DC: Council of Graduate Schools.

Bieber, J.P. & Worley, L.K. (2006). Conceptualizing the academic life: Graduate students' perspectives. *The Journal of Higher Education*, *77*(6), pp. 1009-1033.

Blimling, G. S., Whitt, E. J., & Associates, (1999). *Good practice in student affairs: Principles to foster student learning*. San Francisco: Jossey-Bass.

Bowen, W. G., & Rudenstine, N. L. (1992). *In pursuit of the Ph.D.* Princeton, N.J.: Princeton University Press.

Boyer Commission on Educating Undergraduates in the Research University. (1998). *Reinventing undergraduate education: A blueprint for America's research universities*. Stony Brook: State University of New York.

Brandes, L.C. (2006). Graduate student centers: Building community and involving students. In Guentzel, B. & Nesheim, B.E. (Eds.) *Directions for Student Services, Supporting graduate and professional students: The role of student affairs ,115*, 85-99.

Bresciani, M.J., Selna, C.L., Anderson, J.A. (2004). *Assessing student learning and development: A handbook for practitioners*. Washington, D.C.: NASPA

Brint, S., Cantwell, A. & Hannerman, R. (2008). Two cultures: Undergraduate academic engagement. *Research & Occasional Paper Series, 4(*8). Berkeley, CA: Center for Studies in Higher Education.

Brubacher, J. S., & Rudy, W. (1997). *Higher education in transition: A history of American colleges and universities.* New Brunswick, NJ: Transaction Publishers.

Campbell, C.M. & Cabrera, A.F. (2009). How sound is NSSE? Investigating the psychometric properties of NSSE at a public, research extensive institution. Houston: University of Houston Law Center.

Carnegie Foundation for the Advancement of Teaching. (2012). *The Carnegie classification of institutions in higher education*. Retrieved from http://classifications.carnegiefoundation.org/.

Caulfield, J. (2010). Applying graduate student perceptions of task engagement to enhance learning conditions. *International Journal for the Scholarship of Teaching and Learning, 4*(1), 1-18.

Chalmers, D. (2007). A review of Australian and international quality systems and indicators of learning and teaching, *ALTC Report, 1*(2).

Chang M. J. (1999). Does racial diversity matter? The educational impact of a racially diverse undergraduate population. *Journal of College Student Development* 40 (4): 377–95.

Chen, H.L., Lattuca, L.R., & Hamilton, E.R. (2008). Conceptualizing engagement: Contributions of faculty to student engagement in engineering. *Journal of Engineering Education*, *97*(3*)*, 339-353.

Chickering, A. W., & Gamson, Z. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin, 39*(7), 3–7.

The Chronicle: The Almanac of Higher Education, 2009-10. (2010). [Data file]. Retrieved from http://chronicle.com/almanac/.

Conrad, C.F., Duren, K. M., & Haworth, J.G. (1998). Student's perspectives on their master's degree experiences: Disturbing the conventional wisdom. In M. S. Anderson (Ed.), *The experience of being in graduate school: An exploration.* New Directions for Higher Education, no. 101. San Francisco: Jossey-Bass.

Conrad, C.F., Haworth, J.G., & Millar, S.B. (1993). *A silent success: Master's education in the United States.* Baltimore, Maryland: The Johns Hopkins University Press.

Council for the Advancement of Standards in Higher Education. (2009). *CAS professional standards for higher education,(*7th edition). Washington, D.C: Council for the Advancement of Standards in Higher Education.

Council of Graduate Schools. (2004). *Ph.D. Completion and Attrition: Policy, Numbers, Leadership, and Next Steps.* Washington, D.C.: Council of Graduate Schools.

Council of Graduate Schools. (2005). *Master's education: A guide for faculty and administrators*. Washington, D.C.: Council of Graduate Schools.

Council of Graduate Schools. (2006). Professional master's initiatives. Retrieved from http://www.cgsnet.org/Default.aspx?tabid=120.

Council of Graduate Schools. (2009a). Why should I get a master's degree? Information flyer. Washington, D.C.: Council of Graduate Schools.

Council of Graduate Schools. (2009b). Non-traditional students in graduate education. Research Report. *CGS Communicator.* Retrieved from http://www.cgsnet.org/.

Council of Graduate Schools. (2010a). Data Sources: Results from the 2010 CGS pressing issues survey. *CGS Communicator*. Retrieved from http://www.cgsnet.org/.

Council of Graduate Schools. (2010b). Findings from the 2010 CGS international graduate admissions survey. Research report. Retrieved 1-29-12 from http://www.cgsnet.org/portals/0/pdf/R_IntlEnrl10_III.pdf.

Council of Graduate Schools. (2011). Website. http://www.cgsnet.org/.

Creswell, J.W. (2003). *Research design: Qualitative, quantitative, and mixed methods*. Thousand Oaks, CA: Sage Publications.

Elkins-Nesheim, B., Guentzel, M. J., Kellogg, A.H., McDonald, W. M., Wells, C. A., & Whitt, E.J. (2007). *Journal of College Student Development, 48*(4), 435-453.

Ewell, P. (2000). Grading student learning: Better luck next time. *Measuring Up 2000: The State by State Report Card for Higher Education*. San Jose, CA: National Center for Public Policy and Higher Education.

Foot, J.R. (2009). Exploring international student academic engagement using the NSSE framework. Dissertation. University of Missouri, Columbia. UMI 3455492

Franklin, M. (1995). The effects of differential college environments on academic learning and student perceptions of cognitive development. *Research in Higher Education, 36*(2).

Fuller, T.L. (2009). *Student engagement in graduate theological education.* (Doctoral dissertation), The University of Alabama. Available from from ProQuest Dissertations and Theses Database. (UMI 3385348).

Gardner, S. K., & Barnes, B. J. (2007). Graduate student involvement: Socialization for the professional role. *Journal of College Student Development*, *48*(4), 369-387.

Girves, J.E., & Wemmerus, V. (1988). Developing models of graduate student degree progress. *Journal of Higher Education*, *59*(2): 163-189.

Glazer, J.S. (1986). The master's degree: Tradition, diversity, innovation. *ASHE-Eric Higher Education Research Report 6.* Washington, D.C.: Association for the Study of Higher Education.

Glazer-Raymo, J. (2005). Professionalizing graduate education: The master's degree in the marketplace. *ASHE Higher Education Research Report, 31(*4*).* San-Francisco: Jossey-Bass.

Golde, C. M. (1998). Beginning graduate school: Explaining first-year doctoral attrition. In M. S. Anderson (Ed.), *The Experience of Being in Graduate School: An Exploration.* New Directions for Higher Education, no. 101. San Francisco: Jossey-Bass.

Golde, C. M. (2000). Should I stay or should I go? Student descriptions of the doctoral attrition process. *Review of Higher Education, 23(*2), 199–227.

Golde, C.M. (2005). The role of the department and discipline in doctoral student attrition: Lessons from four departments. *The Journal of Higher Education*, *76*(6), 669-700.

Golde, C.M. & Dore, T.M. (2001). *At cross purposes: What the experiences of doctoral students reveal about doctoral education*. Philadelphia, PA: The Pew Charitable Trusts. Available www.phd-survey.org

Gonyea, B. & Miller, A. (2010). *NSSE's Psychometric Portfolio: Evidence for Reliability, Validity, and Other Quality Indicators*. Retrieved from http://nsse.iub.edu/webinars/...8.../Psychometric_Portfolio_presentation.ppt.

Guentzel, B. & Nesheim, B.E. (Eds.). (2006). Supporting graduate and professional students: The role of student affairs. *New Directions in Student Services, 115*. San Francisco: Joseey-Bass.

Gurin, P. (1999). Expert report of Patricia Gurin. In Mich. (Ed.), The compelling need for diversity in higher education, Gratz et al. v. Bollinger et al, No. 97-75237 and Grutter et al. v. Bollinger et al. No. 97-75928. Ann Arbor, MI: The University of Michigan.

Hartnett, R. T., and Katz, J. (1977). The education of graduate students. *Journal of Higher Education, 48(*6), 646–664.

Hiemstra, R. (1991). Aspects of effective learning environments. In R. Hiemstra, *Creating environments for effective adult learning,* 5-12. San Francisco: Jossey-Bass.

Hiemstra, R., & Sisco, B. (1990). *Individualizing instruction*. San Francisco: Jossey-Bass.

Hu, S., & Kuh, G. D. (2002). Being (dis) engaged in educationally purposeful activities: The influences of student and institutional characteristics. *Research in Higher Education*, *43*(5), 555–575.

Hurtado, S.1992. The campus racial climate: Contexts for conflict. *The Journal of Higher Education* 63 (5): 539-69.

Johnstone, J.W & Rivera, R.J. (1965). *Volunteers for learning: A study of the educational pursuits of adults.* New York: Hawthorne.

Kasworm, C. (2003). Adult meaning making in the undergraduate classroom. *Adult Education Quarterly,53,* 81-98.

Katz, J. & Hartnett, R.T. (1976). Recommendations for training better scholars. In Katz, J. and Hartnett, R.T. (Eds.), *Scholars in the making.* Cambridge: Ballinger.

Kezar, A.J. (2000). Higher education trends (1999-2000): Students. *ERIC Clearinghouse on Higher Education.* Washington, DC: U.S. Department of Education, Institute for Education Policy Studies.

Kilgore, D. & Rice, P.J. (Eds.). (2003). *Meeting the special needs of adult students*. San Francisco: Jossey-Bass.

Knapp, L.G., Kelly-Reid, J.E., & Ginder, S.A. (2011). *Enrollment in postsecondary institutions, fall 2009; Graduation rates, 2003 & 2006 cohorts; and financial statistics*. Washington, D.C.: U.S. Department of Education.

Knowles, M. S. (1980). *The modern practice of adult education*. Chicago: Association Press.

Knowles, M. (1990). *The adult learner: A neglected species* (4th ed.). Houston: Gulf Publishing.

Knowles, M.S., Holton III, E.F., and Swanson, R.A. (2005). *The adult learner: The definitive classic in adult education and human resource development*. Burlington, MA: Elsevier.

Krause, K. (2005). *Understanding and promoting student engagement in university learning communities*. Retrieved from http://www.deakin.edu.au/herg/assets/resources/StudengKrause.pdf.

Kuh, G. D. (2001) Assessing what really matters to student learning: Inside the National Survey of Student Engagement. *Change 33*(3). 10-17.

Kuh, G. D. (2003). What we're learning about student engagement from NSSE: Benchmarks for effective educational practices. *Change, 35*(2), 24–32.

Kuh, G.D. (2009a). What Student Affairs Professionals Need to Know About Student Engagement. *Journal of College Student Development*, *50*(6), 683-706.

Kuh, G.D. (2009b). The National Survey of Student Engagement: Conceptual and empirical foundations. *New Directions for Institutional Research*, *141,* 1-16.

Kuh, G.D., Kinzie, J., Buckley, J.A., Bridges, B.K. & Hayek, J.C. (2007a). Piecing together the student success puzzle: Research, propositions, and recommendations. *ASHE Higher Education Report,* 32 (5). San Francisco: Jossey-Bass.

Kuh, G.D., Kinzie, J., Cruce, T., Shoup, R., & Gonyea, R.M. (2007b). Connecting the dots: Multi-faceted analyses of the relationships between student engagement results from the NSSE, and the institutional practices and conditions that foster student success. Report retrieved from http://nsse.iub.edu/pdf/connecting_the_dots_report.pdf.

Laird, T. F., & Niskode, A. S. (2006). *How gender and race moderate the effect of peer interactions across differences on student and faculty perceptions of the campus environment*. Bloomington, IN: Indiana University Center for Postsecondary Research

Law School Study of Student Engagement. (2010). Webpage. Retrieved from http://lssse.iub.edu/html/about_lssse.cfm.

Law School Study of Student Engagement. (2011). *Navigating Law School: Paths in Legal Education.* Retrieved from http://www.lssse.iub.edu/reports.cfm.

Levine, A. (2001). The remaking of the American university. *Innovative Higher Education*, *25*(4), 253–267.

Light, R.J., Singer, J.D., & Willet, J.B. (1990). *By design: Planning research on higher education*. Cambridge, MA: Harvard University Press.

Lindeman, E. C. (1926). *The meaning of adult education.* New York: New Republic.

Lovitts, B.E. (2001). *Leaving the ivory tower.* Lanham, MD: Rowman and Littlefield.

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong S. (1999). Sample size in factor analysis. *Psychological Methods, 4*, 84-99.

McCubbin, I. (2003). *An examination of criticisms made of Tinto's 1975 student integration model of attrition* (Dept. of Psychology, University of Glasgow). Retrieved from http://www.psy.gla.ac.uk/~steve/localed/icubb.pdf.

Mendoza, P. (2007). Academic capitalism and doctoral student socialization: A case study. *The Journal of Higher Education, 78,* 71-96.

Merriam, S.B. (2001). Andragogy and self-directed learning: Pillars of adult learning theory. *New Directions for Adult and Continuing Education, 89*, 3-14.

Merriam, S.B. & Caffarella, R.S. (1999). *Learning in adulthood: A comprehensive guide*. San Francisco: Jossey-Bass.

Milem, J. F., & Berger, J. B. (1997). A modified model of college student persistence: Exploring the relationship between Astin's theory of involvement and Tinto's theory of student departure. *Journal of College Student Development, 38*(4): 387–400.

National Association of Student Personnel Administrators (NASPA). (2010). Graduate and Professional Student Services Knowledge Community. Retrieved from http://www.naspa.org/kc/agapss/default.cfm.

National Center for Education Statistics (NCES). (2010a). Digest of Education Statistics: 2006. Retrieved from http://nces.ed.gov/programs/digest/d09/index.asp).

National Center for Education Statistics (NCES). (2010b). Profile of graduate and first-professional students: Trends from selected years, 1995-96 to 2007-08. Retrieved from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011219.

National Center for Education Statistics. (2010c). National Postsecondary Student Aid Study. Dataset. Retrieved from http://nces.ed.gov/surveys/npsas/.

National Survey of Student Engagement. (2011). Webpage. http://nsse.iub.edu/.

National Survey of Student Engagement. (2012). *Psychometric Portfolio*. (2012). Retrieved from nsse.iub.edu/links/psychometric_portfolio.

O'Day, P.A., & Kuh, G.D. (2006). Assessing what matters in law school: The Law School Survey of Student Engagement. *Indiana Law Journal, 81*(1), 401-409.

Okun, M.A., Benin, M. & Brandt-Williams (1996). Staying in college. *Journal of Higher Education, 67*(5), 577-579.

Pace, C.R. (1985). *The credibility of student self-reports*. Los Angeles: University of California, Center for the Study of Evaluation.

Pascarella, E.T. (1985). Students' affective development within the college environment. *The Journal of Higher Education, 56*(6), 640-663.

Pascarella, E. T., Duby, P. B., & Iverson, B. K. (1983). A text and reconceptualization of a theoretical model of college withdrawal in a commuter institution setting. *Sociology of Education, 56*(2): 88–100.

Pascarella, E. T., & Terenzini, P. T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *The Journal of Higher Education, 51*(1): 60–75.

Pascarella, E. T., & Terenzini, P. T. (1983). Predicting voluntary freshman year persistence/withdrawal behavior in a residential university: A path analytic validation of Tinto's model. *Journal of Educational Psychology, 75,* 215-226.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students, volume 2, a third decade of research.* San Francisco: Jossey-Bass.

Pascarella, E. T., Terenzini, P. T., & Wolfe, L. (1986). Orientation to college and freshman year persistence/withdrawal decisions. *Journal of Higher Education, 57*(2), 155-174.

Peters, R. L. (1997). *Getting what you came for: The smart student's guide to earning a master's or Ph.D.* New York: Farrar, Straus, and Grioux.

Pike, G. R. (1995). The relationship between self-reports of college experiences and achievement test scores. *Research in Higher Education, 36*(1), 1–21.

Polson, C.J. (2003). Adult graduate students challenge institutions to change. *New Directions for Student Services,102,* 59-68.

Pontius, J. L., & Harper, S. R. (2006). Principles for good practice in graduate and professional student engagement. *New Directions for Student Services, 115*, 47-58. doi: 10.1002/ss.215.

Porter, S. R. (2006). Institutional structures and student engagement. *Research in Higher Education*, *47*(5), 521-558.

Porter, S. R. (2009). Do college student surveys have any validity? *The Review of Higher Education*, *35*(1), 45-76.

Rapp, K. & Golde, C.M. (2008). Transitions in context: An overview of U.S. graduate education. In K. Tokuno (Ed.), *Graduate students in transition: Assisting students through the first year (pp.9-26).* Columbia, S.C.: University of South Carolina.

Reeves, T. D., & Pedulla, J. J. (2011). Predictors of Teacher Satisfaction with Online Professional Development: Evidence from the e-Learning for Educators (EfE) Initiative. *Professional Development in Education*, *37*(4), 591-611.

Russell, J. E. A., & Adams, D. M. (1997). Mentoring. *Journal of Vocational Behavior, 51*(1).

Silver, C., Garver, A., & Watkins, L. (2011). Unpacking the apprenticeship of professional identity and purpose: insights from the law school survey of student engagement. *The Journal of Legal Writing Institute*, *17,* 1-36.

Schlosser, L. Z., & Gelso, C. J. (2001). Measuring the working alliance in advisor–advisee relationships in graduate school. *Journal of Counseling Psychology, 48*, 157–167.

Schlosser, L. Z., Knox, S., Moskovitz, A. R., & Hill, C. E. (2003). A qualitative examination of graduate advising relationships: The advisee perspective. *Journal of Counseling Psychology, 50*(2), 178–188.

Shils, E. (1997). The order of learning in the United States from 1865 to 1920: The ascendancy of the universities. In E. Shils (Ed.), *The order of learning* (pp. 1-38). New Brunswick, NJ:Transaction.

Snyder, T.D., Dillow, S.A., & Hoffman, C.M. (2007). Digest of education statistics 2006. Retrieved from http://nces.ed.gov/pubs2007/2007017.pdf.

Storr, R.J. (1953). *The beginnings of graduate education in America.* Chicago: University of Chicago Press.

Tagiuri, R. (1968). The concept of organizational climate. In R. Tagiuri and G. H. Litwin (Eds.), *Organizational Climate: Explorations of a Concept*. Cambridge: Harvard University.

Taylor, E. W. (1998). The theory and practice of transformative learning: A critical review. (ERIC Information Series No. 374). Center on Education and Training for Employment, College of Education, the Ohio State University.

Terenzini, P.T & Upcraft, M.L. (1996). Assesing program and service outcomes. In Upcraft and Schuh (Eds.) *Assesment in student affairs*, 217-221. San Francisco: Jossey-Bass.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research,45*(1)*,* 89-125.

Tinto, V. (1982). Limits of theory and practice in student attrition. *Journal of Higher Education, 53,* 687-700.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition. 2nd Edition.* Chicago: The University of Chicago Press.

Tinto, V. (1998). Colleges as Communities: Taking Research on Student Persistence Seriously *The Review of Higher Education*, *21*(2), 167-177.

Tokuno, K. (Ed.). (2008). *Graduate students in transition: Assisting students through the first year* (pp.9-26). Columbia, S.C.: University of South Carolina.

Torres, J. & Solberg, S. (2001). Role of self-efficacy, stress, social integration, and family support in Latino college student persistence and health. *Journal of Vocational Behaviour, 59,* 53-63.

Ulku-Steiner, B., Kinlaw, C.R., & Kurtz-Cortes, B. (2000). Doctoral student experiences in gender-balanced and male-dominated graduate programs. *Journal of Educational Psychology, 92*, 296-307.

United States Bureau of Labor (2010). Education pays (Report). Retrieved from http://www.bls.gov/emp/ep_chart_001.htm.

Ward, K. (2005). Forward. In J. Glazer-Raymo, Professionalizing graduate education: The master's degree in the marketplace. *ASHE Higher Education Research Report 31*(4). San-Francisco: Jossey-Bass.

Weidman, J. C., Twale, D. J., & Stein, E. L. (2001). Socialization of graduate and professional students in higher education: A perilous passage? In A. J. Kezar (Ed.) *ASHE-ERIC Higher Education Report, 28*(3), 11-15. San Francisco: Jossey-Bass.

Wendler, C. Bridgeman, B. Cline, F. Millett, J.R., Bell, N. & McAllister, P. (2010). The path forward: The future of graduate education in the United States. Retrieved from http://www.fgereport.org/rsc/pdf/CFGE_report.pdf.

Wolf-Wendel, L., Ward, K. & Kinzie, J. (2009). A tangled web of terms: The overlap and unique Contribution of involvement, engagement, and integration to understanding college student success. *Journal of College Student Development*, *50*(4), 407-428.

Woodard, D.B., Love, P. and Komives, S.R. (2000). *Leadership and management issues for a new century.* San Francisco: Jossey-Bass.

Zemke, R. (2002). Who needs learning theory anyway? *Training Magazine, 39*(9), 86-88.

Zhao, C-M., Kuh, G. D., and Carini, R. M. (2005). A comparison of international student and American student engagement in effective educational practices. *Journal of Higher Education, 76*(2): 209-232.

Appendix A

Master's Survey of Student Engagement Instrument

Page - Informed Consent – Master's Student Engagement

You are being asked to participate in a research study entitled "Master's Student Engagement" and were selected to participate in this project because you are a master's student in either arts and sciences, business, or education. **1,597 master's students are being asked to participate in this research study.**

The purpose of this study is to investigate the dimensions of engagement for master's students, including how they interact with faculty and peers, the activities that they participate in, and how they prepare for class.

This study will be conducted through one online survey**. If you agree to participate you will be asked a series of questions about the activities you participate in during your master's program.** The survey should take you approximately 15 minutes to complete.

There are no direct benefits to you, but your participation may help advance the understanding of how master's students perceive their educational environment and what specific activities relate to positive outcomes. You will not be compensated for the time you take to complete this survey. There are no costs to you associated with your participation.

There are no apparent risks to participating in this study although there may be unknown risks.

This Principal Investigator will exert all reasonable efforts to keep your responses and your identity confidential**. There will be no identifying information to link your individual responses to your name. A company called Campus Labs will administer the survey and ensures that your answers will remain completely confidential. The researcher will not know which individuals have responded.** Please note that regulatory agencies, the Boston College Institutional Review Board, and Boston College internal auditors may review research records.

You participation is voluntary. If you choose not to participate it will not affect your relations with Boston College. You are free to withdraw or skip questions for any reason. There are no penalties for withdrawing or skipping questions.

If you have questions or concerns concerning this research you may contact Katherine O'Dair, the Principal Investigator, at 617-552-3482 or via e-mail at odair@bc.edu. If you have questions about your rights as a research participant, you may contact the Office for Research Protections, Boston College, at 617-552-4778 or irb@bc.edu.

This study was reviewed by the Boston College Institutional Review Board and its approval was granted on April 13, 2012.

With the exception of four items, all items on this instrument are used or adapted with permission from the Law School Survey of Student Engagement, Copyright 2002 - 12, The Trustees of Indiana University.

Required answers: 0 *Allowed answers: 0*

Q1 **I have read this form about the study or it was read to me. I understand the possible risks and benefits of this study. I know that being in this study is voluntary. I choose to be in this study: I know I can stop being in the study and it will not affect my relationship with Boston College.**

If you agree to the statements above and agree to participate in this study, please press the "Consent given" button below to begin the survey.

Consent given*[Code = 1]*

Consent not given*[Code = 2] (Go To End)*

Required answers: 1 *Allowed answers: 1*

Next Page: Conditional

Page - Master's Student Engagement - Research

Q2 I am enrolled in a master's program in:

Arts and Sciences *[Code = 1]*

Carroll School of Management *[Code = 2]*

Lynch Graduate School of Education *[Code = 3]*

Required answers: 0 *Allowed answers: 1*

In your experience in your master's program during the current school year, about how often have you done each of the following?

Q3 Asked a question in class or contributed to class discussions

Very often *[Code = 4]*

Often *[Code = 3]*

Sometimes *[Code = 2]*

Never*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q4 Prepared two or more versions of a paper or assignment before turning it in

Very often *[Code = 4]*

Often *[Code = 3]*

Sometimes *[Code = 2]*

Never*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q5 Worked on a paper or project that required integrating ideas or information from various sources

Very often *[Code = 4]*

Often *[Code = 3]*

Sometimes *[Code = 2]*

Never*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q6 Included diverse perspectives (different races, religions, sexual orientations, genders, political beliefs, etc.) in class discussions or writing assignments

Very often *[Code = 4]*

Often *[Code = 3]*

Sometimes *[Code = 2]*

Never*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q7 Come to class **without** completing readings or assignments

Very often *[Code = 4]*

Often *[Code = 3]*

Sometimes *[Code = 2]*

Never*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q8 Worked with other students on projects **during class**

Very often *[Code = 4]*

Often *[Code = 3]*

Sometimes *[Code = 2]*

Never*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q9 Worked with classmates **outside of class** to prepare class assignments

Very often *[Code = 4]*

Often *[Code = 3]*

Sometimes *[Code = 2]*

Never*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

In your experience in your master's program during the current school year, about how often have you done each of the following?

Q10 Put together ideas or concepts from different courses when completing assignments or during class discussions

Very often *[Code = 4]*

Often *[Code = 3]*

Sometimes *[Code = 2]*

Never*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q11 Used an electronic medium (listserv, Blackboard, Internet, instant messaging) to discuss or complete an assignment

Very often *[Code = 4]*

Often *[Code = 3]*
Sometimes *[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q12 Used e-mail to communicate with a faculty member
Very often *[Code = 4]*
Often *[Code = 3]*
Sometimes *[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q13 Discussed assignments with a faculty member
Very often *[Code = 4]*
Often *[Code = 3]*
Sometimes *[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q14 Talked about career plans or job search activities with a faculty member
Very often *[Code = 4]*
Often *[Code = 3]*
Sometimes *[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q15 Discussed ideas from your readings or classes with faculty members outside of class
Very often *[Code = 4]*
Often *[Code = 3]*
Sometimes *[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q16 Received prompt feedback (written or oral) from faculty on your academic performance
Very often *[Code = 4]*
Often *[Code = 3]*
Sometimes *[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

In your experience in your master's program during the current school year, about how often have you done each of the following?

Q17 Worked harder than you thought you could to meet faculty members' standards or expectations
Very often*[Code = 4]*
Often*[Code = 3]*
Sometimes*[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q18 Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)
Very often*[Code = 4]*

Often*[Code = 3]*
Sometimes*[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q19 Worked with a faculty member on a research project
Very often*[Code = 4]*
Often*[Code = 3]*
Sometimes*[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q20 Discussed ideas from your readings or classes with others outside of class (students, family members, coworkers, etc.)
Very often*[Code = 4]*
Often*[Code = 3]*
Sometimes*[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q21 Had serious conversations with students of a **different race or ethnicity than your own**
Very often*[Code = 4]*
Often*[Code = 3]*
Sometimes*[Code = 2]*
Never*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q22 Had serious conversations with students who are very **different from you in terms of their religious beliefs, political opinions, or personal values**

Very often*[Code = 4]*

Often*[Code = 3]*

Sometimes*[Code = 2]*

Never*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Next Page: Sequential

Page - 3

Q23 Please indicate to what extent your examinations during the current school year have challenged you to do your best work:

7 - Very much*[Code = 7]*

6*[Code = 6]*

5*[Code = 5]*

4*[Code = 4]*

3*[Code = 3]*

2*[Code = 2]*

1 - Very little*[Code = 1]*

I do not have examinations in my program.*[Code = 1] [N/A]*

Required answers: 0 *Allowed answers: 1*

During the current school year, how much has your coursework emphasized the following mental activities?

Q24 **Memorizing** facts, ideas, or methods from your courses and readings so you can repeat them pretty much in

the same form
Very much *[Code = 4]*
Quite a bit *[Code = 3]*
Some*[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q25 **Analyzing** the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth, and considering its components
Very much *[Code = 4]*
Quite a bit *[Code = 3]*
Some*[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q26 **Synthesizing** and organizing ideas, information, or experiences into new, more complex interpretations and relationships
Very much *[Code = 4]*
Quite a bit *[Code = 3]*
Some*[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q27 **Making judgments** about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions
Very much *[Code = 4]*
Quite a bit *[Code = 3]*

Some*[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q28 **Applying** theories or concepts to practical problems or in new situations
Very much *[Code = 4]*
Quite a bit *[Code = 3]*
Some*[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

During the current school year, how much writing will you do?

Q29 Number of written papers of **20 pages or more**
0 *[Code = 1]*
1 - 3 *[Code = 2]*
4 - 6*[Code = 3]*
7 - 9 *[Code = 4]*
10 or more*[Code = 5]*
Required answers: 0 *Allowed answers: 1*

Q30 Number of written papers **between 5 and 19 pages**
0 *[Code = 1]*
1 - 3 *[Code = 2]*
4 - 6*[Code = 3]*

7 - 9 *[Code = 4]*
10 or more*[Code = 5]*
Required answers: 0 *Allowed answers: 1*

Q31 Number of written papers of **fewer than 5 pages**
0 *[Code = 1]*
1 - 3 *[Code = 2]*
4 - 6*[Code = 3]*
7 - 9 *[Code = 4]*
10 or more*[Code = 5]*
Required answers: 0 *Allowed answers: 1*

Which of the following have you done or plan to do while in your master's program before you graduate?

Q32 Clinical, internship, or field experience
Done *[Code = 4]*
Plan to do *[Code = 3]*
Do not plan to do *[Code = 2]*
Undecided*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q33 Volunteer work
Done *[Code = 4]*
Plan to do *[Code = 3]*
Do not plan to do *[Code = 2]*

Undecided*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q34 Student-faculty committee
Done *[Code = 4]*
Plan to do *[Code = 3]*
Do not plan to do *[Code = 2]*
Undecided*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q35 Work on a project with a faculty member outside of course or program requirements
Done *[Code = 4]*
Plan to do *[Code = 3]*
Do not plan to do *[Code = 2]*
Undecided*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q36 Study abroad
Done *[Code = 4]*
Plan to do *[Code = 3]*
Do not plan to do *[Code = 2]*
Undecided*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q37 Student organization member

Done *[Code = 4]*
Plan to do *[Code = 3]*
Do not plan to do *[Code = 2]*
Undecided*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q38 Student organization leader
Done *[Code = 4]*
Plan to do *[Code = 3]*
Do not plan to do *[Code = 2]*
Undecided*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

In your experience in your master's program, how satisfied are you with each of these areas?

Q39 Academic advising and planning
Very satisfied*[Code = 5]*
Satisfied *[Code = 4]*
Unsatisfied *[Code = 3]*
Very unsatisfied *[Code = 2]*
Not used*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q40 Career counseling
Very satisfied*[Code = 5]*

Satisfied *[Code = 4]*
Unsatisfied *[Code = 3]*
Very unsatisfied *[Code = 2]*
Not used*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q41 Personal counseling
Very satisfied*[Code = 5]*
Satisfied *[Code = 4]*
Unsatisfied *[Code = 3]*
Very unsatisfied *[Code = 2]*
Not used*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q42 Job search help
Very satisfied*[Code = 5]*
Satisfied *[Code = 4]*
Unsatisfied *[Code = 3]*
Very unsatisfied *[Code = 2]*
Not used*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q43 Financial aid advising
Very satisfied*[Code = 5]*
Satisfied *[Code = 4]*

Unsatisfied *[Code = 3]*
Very unsatisfied *[Code = 2]*
Not used*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q44 Library assistance
Very satisfied*[Code = 5]*
Satisfied *[Code = 4]*
Unsatisfied *[Code = 3]*
Very unsatisfied *[Code = 2]*
Not used*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q45 Computing technology
Very satisfied*[Code = 5]*
Satisfied *[Code = 4]*
Unsatisfied *[Code = 3]*
Very unsatisfied *[Code = 2]*
Not used*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

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During the current school year, about how many hours do you spend in a **typical** 7-day week doing each of the following?

Q46 Reading assigned textbooks, online class reading, and other course materials
0 *[Code = 1]*
1 - 5 *[Code = 2]*
6 - 10 *[Code = 3]*
11 - 15*[Code = 4]*
16 - 20 *[Code = 5]*
21 - 25*[Code = 6]*
26 - 30*[Code = 7]*
31 - 35*[Code = 8]*
Required answers: 0 *Allowed answers: 1*

Q47 Preparing for class **other than reading** (studying, writing, doing homework, and other academic activities)
0 *[Code = 1]*
1 - 5 *[Code = 2]*
6 - 10 *[Code = 3]*
11 - 15*[Code = 4]*
16 - 20 *[Code = 5]*
21 - 25*[Code = 6]*
26 - 30*[Code = 7]*
31 - 35*[Code = 8]*
Required answers: 0 *Allowed answers: 1*

Q48 Reading on your own (not assigned) for personal or academic enrichment
0 *[Code = 1]*
1 - 5 *[Code = 2]*

6 - 10 *[Code = 3]*
11 - 15*[Code = 4]*
16 - 20 *[Code = 5]*
21 - 25*[Code = 6]*
26 - 30*[Code = 7]*
31 - 35*[Code = 8]*
Required answers: 0 *Allowed answers: 1*

Q49 Volunteer work not required for a class or clinical course
0 *[Code = 1]*
1 - 5 *[Code = 2]*
6 - 10 *[Code = 3]*
11 - 15*[Code = 4]*
16 - 20 *[Code = 5]*
21 - 25*[Code = 6]*
26 - 30*[Code = 7]*
31 - 35*[Code = 8]*
Required answers: 0 *Allowed answers: 1*

Q50 Working for pay in a job **related** to your discipline
0 *[Code = 1]*
1 - 5 *[Code = 2]*
6 - 10 *[Code = 3]*
11 - 15*[Code = 4]*
16 - 20 *[Code = 5]*

21 - 25*[Code = 6]*
26 - 30*[Code = 7]*
31 - 35*[Code = 8]*
Required answers: 0 *Allowed answers: 1*

Q51 Working for pay in a job **not related** to your discipline
0 *[Code = 1]*
1 - 5 *[Code = 2]*
6 - 10 *[Code = 3]*
11 - 15*[Code = 4]*
16 - 20 *[Code = 5]*
21 - 25*[Code = 6]*
26 - 30*[Code = 7]*
31 - 35*[Code = 8]*
Required answers: 0 *Allowed answers: 1*

Q52 Working at an unpaid internship related to your discipline
0 *[Code = 1]*
1 - 5 *[Code = 2]*
6 - 10 *[Code = 3]*
11 - 15*[Code = 4]*
16 - 20 *[Code = 5]*
21 - 25*[Code = 6]*
26 - 30*[Code = 7]*
31 - 35*[Code = 8]*

Required answers: 0 *Allowed answers: 1*

During the current school year, about how many hours do you spend in a **typical** 7-day week doing each of the following?

Q53 Participating in program or school-sponsored activities (organizations, student government, etc.)

0 *[Code = 1]*

1 - 5 *[Code = 2]*

6 - 10 *[Code = 3]*

11 - 15 *[Code = 4]*

16 - 20 *[Code = 5]*

21 - 25 *[Code = 6]*

26 - 30 *[Code = 7]*

31 - 35*[Code = 8]*

Required answers: 0 *Allowed answers: 1*

Q54 Exercising or participating in fitness activities

0 *[Code = 1]*

1 - 5 *[Code = 2]*

6 - 10 *[Code = 3]*

11 - 15 *[Code = 4]*

16 - 20 *[Code = 5]*

21 - 25 *[Code = 6]*

26 - 30 *[Code = 7]*

31 - 35*[Code = 8]*

Required answers: 0 *Allowed answers: 1*

Q55 Relaxing and socializing (watching TV, partying, etc.)	
0 *[Code = 1]*	
1 - 5 *[Code = 2]*	
6 - 10 *[Code = 3]*	
11 - 15 *[Code = 4]*	
16 - 20 *[Code = 5]*	
21 - 25 *[Code = 6]*	
26 - 30 *[Code = 7]*	
31 - 35*[Code = 8]*	
Required answers: 0	*Allowed answers: 1*

Q56 Providing care for dependents living with you (children, parents, spouse, etc.)	
0 *[Code = 1]*	
1 - 5 *[Code = 2]*	
6 - 10 *[Code = 3]*	
11 - 15 *[Code = 4]*	
16 - 20 *[Code = 5]*	
21 - 25 *[Code = 6]*	
26 - 30 *[Code = 7]*	
31 - 35*[Code = 8]*	
Required answers: 0	*Allowed answers: 1*

Q57 Commuting to class (driving, walking, public transportation, etc.)
0 *[Code = 1]*

1 - 5 *[Code = 2]*
6 - 10 *[Code = 3]*
11 - 15 *[Code = 4]*
16 - 20 *[Code = 5]*
21 - 25 *[Code = 6]*
26 - 30 *[Code = 7]*
31 - 35*[Code = 8]*
Required answers: 0 *Allowed answers: 1*

Q58 Participating in community organizations (religious groups, politics, etc.)
0 *[Code = 1]*
1 - 5 *[Code = 2]*
6 - 10 *[Code = 3]*
11 - 15 *[Code = 4]*
16 - 20 *[Code = 5]*
21 - 25 *[Code = 6]*
26 - 30 *[Code = 7]*
31 - 35*[Code = 8]*
Required answers: 0 *Allowed answers: 1*

To what extent does your master's program emphasize each of the following?

Q59 Spending significant amounts of time studying and on academic work
Very much *[Code = 4]*
Quite a bit *[Code = 3]*

Some *[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q60 Providing the support you need to help you succeed academically
Very much *[Code = 4]*
Quite a bit *[Code = 3]*
Some *[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q61 Encouraging contact among students from different economic, social, sexual orientation, and racial and ethnic backgrounds
Very much *[Code = 4]*
Quite a bit *[Code = 3]*
Some *[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q62 Providing the support you need to succeed in your employment search
Very much *[Code = 4]*
Quite a bit *[Code = 3]*
Some *[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q63 Helping you cope with your non-academic responsibilities (work, family, etc.)

Very much *[Code = 4]*

Quite a bit *[Code = 3]*

Some *[Code = 2]*

Very little*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

To what extent does your master's program emphasize each of the following?

Q64 Providing the support you need to thrive socially

Very much *[Code = 4]*

Quite a bit*[Code = 3]*

Some*[Code = 2]*

Very little*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q65 Attending campus events and activities (special speakers, cultural events, symposia, etc.)

Very much *[Code = 4]*

Quite a bit*[Code = 3]*

Some*[Code = 2]*

Very little*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q66 Providing the financial counseling you need to afford your education

Very much *[Code = 4]*

Quite a bit*[Code = 3]*
Some*[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q67 Using computers in academic work
Very much *[Code = 4]*
Quite a bit*[Code = 3]*
Some*[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

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Q68 Please indicate which best represents the quality of relationships with **other students** in your program:
7 - Friendly, supportive, sense of belonging*[Code = 7]*
6*[Code = 6]*
5*[Code = 5]*
4*[Code = 4]*
3*[Code = 3]*
2*[Code = 2]*
1 - Unfriendly, unsupportive, sense of alienation*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q69 Please indicate which best represents the quality of relationships with **faculty members** in your program:

7 - Available, helpful, sympathetic*[Code = 7]*

6*[Code = 6]*

5*[Code = 5]*

4*[Code = 4]*

3*[Code = 3]*

2*[Code = 2]*

1 - Unavailable, unhelpful, unsympathetic*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q70 Please indicate which best represents the quality of relationships with **administrative staff and offices** in your program:

7 - Helpful, considerate, flexible*[Code = 7]*

6*[Code = 6]*

5*[Code = 5]*

4*[Code = 4]*

3*[Code = 3]*

2*[Code = 2]*

1 - Unhelpful, inconsiderate, rigid *[Code = 1]*

Required answers: 0 *Allowed answers: 1*

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To what extent has your experience in your master's program contributed to your knowledge, skills, and personal development in the following areas?

Q71 Acquiring a broad disciplinary education		
Very much*[Code = 4]*		
Quite a bit *[Code = 3]*		
Some *[Code = 2]*		
Very little*[Code = 1]*		
	Required answers: 0	*Allowed answers: 1*

Q72 Writing clearly and effectively		
Very much*[Code = 4]*		
Quite a bit *[Code = 3]*		
Some *[Code = 2]*		
Very little*[Code = 1]*		
	Required answers: 0	*Allowed answers: 1*

Q73 Speaking clearly and effectively		
Very much*[Code = 4]*		
Quite a bit *[Code = 3]*		
Some *[Code = 2]*		
Very little*[Code = 1]*		
	Required answers: 0	*Allowed answers: 1*

Q74 Thinking critically and analytically
Very much*[Code = 4]*
Quite a bit *[Code = 3]*
Some *[Code = 2]*

Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q75 Using computing and information technology
Very much*[Code = 4]*
Quite a bit *[Code = 3]*
Some *[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q76 Developing research skills
Very much*[Code = 4]*
Quite a bit *[Code = 3]*
Some *[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q77 Working effectively with others
Very much*[Code = 4]*
Quite a bit *[Code = 3]*
Some *[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

To what extent has your experience in your master's program contributed to your knowledge, skills, and personal development in the following areas?

Q78 Learning effectively on your own		
Very much *[Code = 4]*		
Quite a bit*[Code = 3]*		
Some *[Code = 2]*		
Very little*[Code = 1]*		
	Required answers: 0	*Allowed answers: 1*

Q79 Understanding yourself		
Very much *[Code = 4]*		
Quite a bit*[Code = 3]*		
Some *[Code = 2]*		
Very little*[Code = 1]*		
	Required answers: 0	*Allowed answers: 1*

Q80 Understanding people of other racial and ethnic backgrounds		
Very much *[Code = 4]*		
Quite a bit*[Code = 3]*		
Some *[Code = 2]*		
Very little*[Code = 1]*		
	Required answers: 0	*Allowed answers: 1*

Q81 Solving complex real-world problems
Very much *[Code = 4]*
Quite a bit*[Code = 3]*
Some *[Code = 2]*

Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q82 Developing clear career goals
Very much *[Code = 4]*
Quite a bit*[Code = 3]*
Some *[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q83 Developing a personal code of values and ethics
Very much *[Code = 4]*
Quite a bit*[Code = 3]*
Some *[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q84 Contributing to the welfare of your community
Very much *[Code = 4]*
Quite a bit*[Code = 3]*
Some *[Code = 2]*
Very little*[Code = 1]*
Required answers: 0 *Allowed answers: 1*

Q85 Developing a deepened sense of spirituality

Very much *[Code = 4]*

Quite a bit*[Code = 3]*

Some *[Code = 2]*

Very little*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q86 How would you evaluate your entire educational experience in your master's program?

Excellent *[Code = 4]*

Good *[Code = 3]*

Fair *[Code = 2]*

Poor*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

Q87 If you could start over again, would you enroll in the same program you are currently enrolled in?

Definitely yes *[Code = 4]*

Probably yes *[Code = 3]*

Probably no *[Code = 2]*

Definitely no*[Code = 1]*

Required answers: 0 *Allowed answers: 1*

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Q88 Year of birth: (Please enter four-digit whole number)

[Code = 1] [Textbox - Numeric]

	Required answers: 0 *Allowed answers: 1*

Q89 Your sex:
Male *[Code = 1]*
Female*[Code = 2]*
I prefer not to respond*[Code = 3]*
Required answers: 0 *Allowed answers: 1*

Q90 Are you an international student or foreign national?
Yes*[Code = 1]*
No*[Code = 2]*
Required answers: 0 *Allowed answers: 1*

Q91 What is your racial or ethnic identification?
American Indian or Native American *[Code = 1]*
Asian, Asian American, or Pacific Islander *[Code = 2]*
Black or African American *[Code = 3]*
White (not Hispanic) *[Code = 4]*
Mexican or Mexican American*[Code = 5]*
Puerto Rican*[Code = 6]*
Other Hispanic or Latino *[Code = 7]*
Multiracial *[Code = 8]*
Other (please specify)*[Code = 9] [Textbox]*
I prefer not to respond*[Code = 10]*
Required answers: 0 *Allowed answers: 1*

Q92 What is your sexual orientation?
Bisexual *[Code = 1]*
Gay or lesbian *[Code = 2]*
Heterosexual*[Code = 3]*
I prefer not to respond*[Code = 4]*
Required answers: 0 *Allowed answers: 1*

Q93 Thinking about the current **Spring 2012** academic term, how many credits are you taking? (Note: one class is typically 3 credits)
0 to 3 credits *[Code = 1]*
4 to 8 credits*[Code = 2]*
9 or more credits*[Code = 3]*
Required answers: 0 *Allowed answers: 1*

Q94 Thinking about your **Fall 2011** academic term enrollment, how many credits did you take? (Note: one class is typically 3 credits)
0 to 3 credits*[Code = 1]*
4 to 8 credits*[Code = 2]*
9 or more credits*[Code = 3]*
Required answers: 0 *Allowed answers: 1*

Q95 Are you participating in a joint-degree program?
Yes (please specify which program)*[Code = 1] [Textbox]*
No*[Code = 2]*
Required answers: 0 *Allowed answers: 1*

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Q96 Are you part of a 5th-year program where you started your master's degree as a BC undergraduate student?
Yes*[Code = 1]*
No*[Code = 2]*
Required answers: 0 *Allowed answers: 1*

Q97 This is my:
First year in the program*[Code = 1]*
Second year in the program *[Code = 2]*
Third year in the program *[Code = 3]*
Fourth year or more in the program*[Code = 4]*
Required answers: 0 *Allowed answers: 1*

Q98 Did you begin your master's degree program at your current location or elsewhere?
Started here *[Code = 1]*
Started elsewhere*[Code = 2]*
Required answers: 0 *Allowed answers: 1*

Q99 How many years elapsed between earning your undergraduate degree and enrolling in your master's degree program?
0 *[Code = 1]*
1 - 2*[Code = 2]*
3 - 5 *[Code = 3]*
6 - 10*[Code = 4]*
More than 10*[Code = 5]*

Required answers: 0 *Allowed answers: 1*

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Q100 What have most of your grades been up to now in your master's program?
I get all A's*[Code = 1]*
I get mostly A and A- *[Code = 2]*
I get mostly A- and B+*[Code = 3]*
I get mostly B+ and B *[Code = 4]*
I get mostly B and B- *[Code = 5]*
I get mostly B- and C+ *[Code = 6]*
I get mostly C+ and C*[Code = 7]*
I get mostly C or below*[Code = 8]*
Required answers: 0 *Allowed answers: 1*

Q101 How much educational debt from attending your master's program do you expect to have upon your graduation?
$0 *[Code = 1]*
$1 - $20,000 *[Code = 2]*
$20,001 - $40,000 *[Code = 3]*
$40,001 - $60,000 *[Code = 4]*
$60,001 - $80,000*[Code = 5]*
$80,001 - $100,000*[Code = 6]*
$100,001 - $120,000 *[Code = 7]*
More than $120,000*[Code = 8]*
Required answers: 0 *Allowed answers: 1*

Q102 What is your current marital status?	
Married*[Code = 1]*	
Single (never married) *[Code = 2]*	
Separated/divorced *[Code = 3]*	
Widowed *[Code = 4]*	
Partnered*[Code = 5]*	
	Required answers: 0 *Allowed answers: 1*

Q103 Do you have children living at home?	
Yes*[Code = 1]*	
No*[Code = 2]*	
	Required answers: 0 *Allowed answers: 1*

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	Required answers: 0 *Allowed answers: 0*

Appendix B

Master's Survey of Student Engagement Instrument Items Broken By Engagement Dimension and Outcomes

Engagement Dimension: Supportive Campus Environment (SCE) (8 items)

To what extent does your master's program emphasize each of the following?

Q63. Providing the support you need to help you succeed academically
Q62. Providing the support you need to succeed in your employment search
Q60. Helping you cope with your non-academic responsibilities (work, family, etc.)
Q64. Providing the support you need to thrive socially

Mark the box that best represents the quality of relationships with people in your program.

Q68. Other students
Q69. Faculty members

To what extent does your master's program emphasize each of the following?

Q61. Encouraging contact among students from different economic, social, sexual orientation, and racial and ethnic backgrounds
Q67. Using computers in academic work

Engagement Dimension: Level of Academic Rigor (LAR) (7 items)

During the current school year, how much has your coursework emphasized the following mental activities?

Q25. Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth, and considering its components
Q26. Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships
Q27. Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions
Q28. Applying theories or concepts to practical problems or in new situations

In your experience in your master's program during the current school year, about how often have you done each of the following?

Q10. Put together ideas of concepts from different courses when completing assignments or during class

Q20. Discussed ideas from your readings or classes with others outside of class (students, family members, coworkers, etc.)

In your experience in your master's program during the current school year, about how often have you done each of the following?

Q6. Included diverse perspectives (different races, religions, sexual orientations, genders, political beliefs, etc.) in class discussions or writing assignments

Engagement Dimension: Student-Faculty Interaction (SFI) (5 items)

In your experience in your master's program during the current school year, about how often have you done each of the following?

Q13. Discussed assignments with a faculty member
Q14. Talked about career plans or job search activities with a faculty member
Q15. Discussed ideas from your readings or classes with faculty members outside of class

Which of the following have you done or plan to do while in your master's program before you graduate?

Q18. Work on a project with a faculty member outside of course or program requirements
Q19. Worked with a faculty member on a research project

Engagement Dimension: Level of Academic Preparation (LAP) (5 items)

During the current school year, about how many hours do you spend in a *typical* 7-day week doing each of the following?

Q46. Reading assigned textbooks, online class reading, and other course materials
Q47. Preparing for class **other than reading (**studying, writing, doing homework, and other academic activities)

To what extent does your master's program emphasize each of the following?

Q59. Spending significant amounts of time studying and on academic work

During the current school year, how much writing will you do?

Q29. Number of written papers of **20 pages or more**

In your experience in your master's program during the current school year, about how often have you done each of the following?

Q17. Worked harder than you thought you could to meet faculty members' standards or expectations

Engagement Dimension: Diverse Campus Experiences (DCE) (3 items)

In your experience in your master's program during the current school year, about how often have you done each of the following?

Q6. Included diverse perspectives (different races, religions, sexual orientations, genders, political beliefs, etc.) in class discussions or writing assignments
Q21. Had serious conversations with students of a different race or ethnicity than your own
Q22. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values

Educational Outcomes for ConvergentConstruct Validity Evidence (RQ1)

To what extent has your experience in your master's program contributed to your knowledge, skills, and personal development in the following areas:

Q71. Acquiring a broad disciplinary education
Q72. Writing clearly and effectively
Q73. Speaking clearly and effectively
Q74. Thinking critically and analytically
Q75. Using computing and information technology
Q76. Developing research skills
Q77. Working effectively with others
Q78. Learning effectively on your own
Q80. Understanding people of other racial and ethnic backgrounds
Q81. Solving complex real-world problems
Q82. Developing clear career goals

Appendix C

Benchmark Items and Variable Name

Question number	Benchmark	Variable Name	Question
6	EEE	DIVCLASS	Included diverse perspectives (different races, religions, sexual orientations, genders, political beliefs, etc.) in class discussions or writing assignments
8	ACL	CLASSGRP	Worked with other students on projects during class
9	ACL	OCCGRP	Worked with classmates outside of class to prepare class assignments
10	ACL	INTIDEAS	Put together ideas or concepts from different courses when completing assignments or during class discussions
13	SFI	FACDISCUSS	Discussed assignments with a faculty member
14	SFI	FACPLANS	Talked about career plans or job search activities with a faculty member
15	SFI	FACIDEAS	Discussed ideas from your readings or classes with faculty members outside of class
16	SFI	FACFEED	Received prompt feedback (written or oral) from faculty on your academic performance
17	LAC	WORKHARD	Worked harder than you thought you could to meet faculty members' standards or expectations
18	SFI	FACOTHER	Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)
19	SFI	FACRESRCH	Worked with a faculty member on a research project
20	ACL	OCCIDEAS	Discussed ideas from your readings or classes with others outside of class (students, family members, coworkers, etc.)
21	EEE	DIVRSTUD	Had serious conversations with students of a different race or ethnicity than your own
22	EEE	DIFFSTUD	Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values
25	LAC	ANALYZE	Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth, and considering its components
26	LAC	SYNTHESIZE	Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships

27	LAC	EVALUATE	Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness
28	LAC	APPLYING	Applying theories or concepts to practical problems or in new situations
29	LAC	WRITEMOR	Number of written papers of 20 pages or more
30	LAC	WRITEMD	Number of written papers between 5 and 19 pages
31	LAC	WRITESML	Number of written papers of fewer than 5 pages
46	LAC	READASSG	Reading assigned textbooks, online class reading, and other course materials
47	LAC	PREPNOREAD	Preparing for class other than reading (studying, writing, doing homework, and other academic activities)
52	EEE	INTERNUPD	Working at an unpaid internship related to your discipline
53	EEE	COCURR	Participating in program or school-sponsored activities (organizations, student government, etc.)
58	EEE	COMMUN	Participating in community organizations (religious groups, politics, etc.)
59	LAC	ENVSCHOL	Spending significant amounts of time studying and on academic work
60	SCE	ENVSUPRT	Providing the support you need to help you succeed academically
61	EEE	ENVDIVRS	Encouraging contact among students from different economic, social, sexual orientation, and racial and ethnic backgrounds
62	SCE	ENVEMPLY	Providing the support you need to succeed in your employment search
63	SCE	ENVNACAD	Helping you cope with your non-academic responsibilities (work, family, etc.)
64	SCE	ENVSOCIAL	Providing the support you need to thrive socially
67	EEE	ENVCOMP	Using computers in academic work
68	SCE	ENVSTU	Please indicate which best represents the quality of relationships with other students in your program
69	SCE	ENVFAC	Please indicate which best represents the quality of relationships with faculty members in your program
70	LAC	ENVADM	Please indicate which best represents the quality of relationships with administrative staff and offices in your program

Appendix D

MSSE Items, Variable Name, and Question By Dimension

Items in the Supportive Campus Environment (SCE) Dimension

Item	Variable Name	Question
60	ENVSUPRT	Providing the support you need to help you succeed academically
61	ENVDIVRS	Encouraging contact among students from different economic, social, sexual orientation, and racial and ethnic backgrounds
62	ENVEMPLY	Providing the support you need to succeed in your employment search
63	ENVNACAD	Helping you cope with your non-academic responsibilities (work, family, etc.)
64	ENVSOCIAL	Providing the support you need to thrive socially
67	ENVCOMP	Using computers in academic work
68	ENVSTU	Please indicate which best represents the quality of relationships with other students in your program
69	ENVFAC	Please indicate which best represents the quality of relationships with faculty members in your program

Items in the Level of Intellectual Engagement (LIE) Dimension

Item	Variable Name	Question
10	INTIDEAS	Put together ideas or concepts from different courses when completing assignments or during class discussions
20	OCCIDEAS	Discussed ideas from your readings or classes with others outside of class (students, family members, coworkers, etc.)
6	DIVCLASS	Included diverse perspectives (different races, religions, sexual orientations, genders, political beliefs, etc.) in class discussions or writing assignments
25	ANALYZE	Analyzing the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth, and considering its components
26	SYNTHESIZE	Synthesizing and organizing ideas, information, or experiences into new, more complex interpretations and relationships
27	EVALUATE	Making judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness
28	APPLYING	Applying theories or concepts to practical problems or in new situations

Items in the Student-Faculty Interaction (SFI) Dimension

Item	Variable Name	Question
13	FACDISCUSS	Discussed assignments with a faculty member
14	FACPLANS	Talked about career plans or job search activities with a faculty member
15	FACIDEAS	Discussed ideas from your readings or classes with faculty members outside of class
18	FACOTHER	Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)
19	FACRESRCH	Worked with a faculty member on a research project

Level of Academic Preparation (LAP)

Item	Variable Name	Question
17	WORKHARD	Worked harder than you thought you could to meet faculty members' standards or expectations
29	WRITEMOR	Number of written papers of 20 pages or more
46	READASSG	Reading assigned textbooks, online class reading, and other course materials
47	PREPNOREAD	Preparing for class other than reading (studying, writing, doing homework, and other academic activities)
59	ENVSCHOL	Spending significant amounts of time studying and on academic work

Diverse Experiences on Campus (DEC)

Item	Variable Name	Question
21	DIVRSTUD	Had serious conversations with students of a different race or ethnicity than your own
22	DIFFSTUD	Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values
6	DIVCLASS	Included diverse perspectives (different races, religions, sexual orientations, genders, political beliefs, etc.) in class discussions or writing assignments

Appendix E

LSSSE License Agreement

Law School Survey of
Student Engagement

The Law School Survey of Student Engagement
Item Usage Agreement

The Law School Survey of Student Engagement's (LSSSE) survey instrument is copyrighted and the copyright is owned by The Trustees of Indiana University. Any use of survey items contained within the *LSSSE* survey is prohibited without prior written permission from Indiana University. When fully executed, this Agreement constitutes written permission from the University, on behalf of LSSSE, for the party named below to use an item or items from the *LSSSE* survey in accordance with the terms of this Agreement.

In consideration of the mutual promises below, the parties hereby agree as follows:

1) The University hereby grants **Katherine O'Dair** ("Licensee") a nonexclusive, worldwide, irrevocable license to use the item(s) listed in the proposal attached as Exhibit A, solely for the purpose of including such item(s) in the survey activity described in Exhibit A, which is incorporated by reference into this Agreement. This license does not include any right to sublicense others. This license only covers the survey instrument, time frame, population, and other terms described in Exhibit A. Any different or repeated use of the item(s) shall require an additional license.

2) In exchange for the license granted in section 1, Licensee agrees:

   a) to provide to LSSSE frequency distributions and means on the licensed item(s);

   b) on the survey form itself, and in all publications or presentations of data obtained through the licensed item(s), to include the following citation: "Items *xx* and *xx* used with permission from the Law School Survey of Student Engagement, Copyright 2002-12 The Trustees of Indiana University";

   c) to provide to LSSSE a copy of any derivatives of, or alterations to, the item(s) that Licensee makes for the purpose of Licensee's survey ("modified items"), for LSSSE's own nonprofit, educational purposes, which shall include the use of the modified items in *Law School Survey of Student Engagement* or any other survey instruments, reports, or other educational or professional materials that LSSSE may develop or use in the future. Licensee hereby grants Indiana University a nonexclusive, worldwide, irrevocable, royalty-free license to use, reproduce, distribute, create derivatives from, and publicly display and perform the modified items, in any media now known or hereafter developed; and

   d) to provide to LSSSE, for its own nonprofit, educational purposes, a copy of all reports, presentations, analyses, or other materials in which the item(s) licensed under this Agreement, or modified items, and any responses to licensed or modified items, are presented, discussed, or analyzed. LSSSE shall not make public any data it obtains

Indiana University Center for Postsecondary Research
1900 East Tenth Street • Eigenmann Hall, Suite 419 • Bloomington, IN 47406
Phone: (812) 856-5824 • Fax: (812) 856-5150 • E-mail: lssse@indiana.edu • Web Address: www.lssse.iub.edu

under this subsection in a manner that identifies specific institutions or individuals, except with the consent of the Licensee.

3) LSSSE agrees not to charge a licensing fee to use the LSSSE items for the purposes described in Exhibit A

4) This Agreement expires on July 31, 2012.

The undersigned hereby consent to the terms of this Agreement and confirm that they have all necessary authority to enter into this Agreement.

For The Trustees of Indiana University:

[redacted] Digitally signed by Carole Silver
DN: cn=Carole Silver, o, ou=LSSSE, email=silverc@indiana.edu, c=US
Date: 2012.02.06 09:48:39 -05'00'

Carole Silver
Director
Law School Survey of Student Engagement

Date

For Licensee:

[redacted]

Name: Dr. Karen Arnold
Title: Associate Professor, Higher Education Administration
Institution: Boston College

1/17/12
Date

Appendix F

Institutional Review Board Approval

BOSTON COLLEGE
Institutional Review Board
Office for Research Protections
Waul House, 3rd Floor
Phone: (617) 552-4778, fax: (617) 552-0498

IRB Protocol Number: 12.261.01

DATE: April 13, 2012

TO: Katherine O'Dair

CC: Karen Arnold

FROM: Institutional Review Board – Office for Research Protections

RE: Master's Student Engagement

Notice of IRB Review and Approval
Expedited Review as per Title 45 CFR Part 46.110, FR 60366, FR, # 7
Partial Waiver of Informed Consent [Title 45 CFR 46.116 (c) or 45 CFR 6.116(d)]

The project identified above has been reviewed by the Boston College Institutional Review Board (IRB) for the Protection of Human Subjects in Research using an expedited review procedure. This is a minimal risk study. This approval is based on the assumption that the materials, including changes/clarifications that you submitted to the IRB contain a complete and accurate description of all the ways in which human subjects are involved in your research.

This approval is given with the following standard conditions:

1. You are approved to conduct this research only during the period of approval cited below;
2. You will conduct the research according to the plans and protocol submitted (approved copy enclosed);
3. You will immediately inform the Office for Research Protections (ORP) of any injuries or adverse research events involving subjects;
4. You will immediately request approval from the IRB of any proposed changes in your research, and you will not initiate any changes until they have been reviewed and approved by the IRB;
5. The IRB has waived the requirement for obtaining the signature as allowed under 45CFR 46.117 (c) (1). The research presents no more than minimal risk of harm to subjects, and involves no procedures for which written consent is normally required outside of the research context.

6. You will only use the informed consent documents that have the IRB approval dates stamped on them (approved copies enclosed).
7. You will give each research subject a copy of the informed consent document;
8. You may enroll up to 1595 participants.
9. If your research is anticipated to continue beyond the IRB approval dates, you must submit a Continuing Review Request to the IRB approximately 60 days prior to the IRB approval expiration date. Without continuing approval the Protocol will automatically expire on April 12, 2013.

Additional Conditions: Any r*esearch personnel that have not completed an acceptable education/training program should be removed from the project until they have completed the training. When they have completed the training, you must submit a Protocol Revision and Amendment Form to add their names to the protocol, along with a copy of their education/ training certificate.*

Approval Period: **April 13, 2012-April 12, 2013.**

If you are conducting research using an online survey (e.g. Survey Monkey, Qualtrics), the IRB requires that the approval dates appear on the online consent page of your survey. Please copy and paste the statement below onto your survey:

The Boston College IRB has approved this protocol from April 13, 2012-April 12, 2013 .

Boston College and the Office for Research Protections appreciate your efforts to conduct research in compliance with Boston College Policy and the federal regulations that have been established to ensure the protection of human subjects in research. Thank you for your cooperation and patience with the IRB process.

Sincerely,

[redacted]

Stephen Erickson
Director
Office for Research Protections

Enclosures

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